



## **THICK TURRET STYLE TOOLING**

ULTRA<sup>®</sup> AND THICK TURRET TOOLING

## FIVE DECADES OF GLOBAL EXCELLENCE

Founded in 1962, Mate is a world-class manufacturer of superior sheet metal fabrication products and solutions. We manufacture tooling for every major CNC punch press. In North America, we also offer a complete line of press brake tooling and CO2 laser consumables. Mate products and services are available worldwide, fully supported by over than 80 dealers in every industrialized country.



Headquartered in Anoka, Minnesota, in a 300,000 sq. ft. (28,000m<sup>2</sup>) state-of-the-art facility.



### WE RESPECT YOU PERSONAL CONNECTIONS

Mate does business with people, not companies. Our connection to you is personal. Mate's team of manufacturing and sheet metal professionals knows what you go through. We know what it's like to compete for that next job, manage deadlines or even need a rescue. With Mate you have a partner that respects your knowledge and is dedicated to helping you succeed.



### WE SUPPORT YOU YOUR GO-TO SOURCE

In your plant. Or on the phone. From our Sales Engineers and Customer Service, to our machinists and shipping department, Mate is pulling for YOU. Mate's in-field sales engineers know from experience what happens on the shop floor. They speak your language, fully capable of helping you improve processes and solve problems. Inside Mate, Customer Service makes quoting and ordering tooling fast and easy, guiding it through our world class manufacturing systems to ensure you receive your order when you expect it.



### WE INSPIRE YOU THINK BOLD, WE'VE GOT YOU COVERED

Whether it's on-site at your facility or in our Solution Center, Mate can inspire innovation from looking at new ways to use existing products or by developing new or specialty solutions that meet your specific requirements. Mate's team will assist you with a fast solution, whether it's a hinge, a building façade or a completely new challenge. Plus you're BACKED by our no-risk 100% customer satisfaction guarantee.

### MATE'S MISSION AND PROMISE TO YOU:

To personally **respect**, **support** and **inspire** sheet metal professionals around the world with high-quality precision tooling and services.

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\*All prices in this catalog are subject to change without notice.

Mate offers the most comprehensive range of thick turret tooling systems designed to accommodate any punching application. Use this simple chart to determine which system is right for your typical thick turret applications.

| <div> <div>←</div> <div>LESS</div> <div>→</div> </div> <div> <div>•</div> <div>••</div> <div>•••</div> <div>••••</div> <div>•••••</div> </div> <div>MORE</div>    | Ultra® QCT™ | Ultra TEC® | Ultra XT™ | ORIGINAL STYLE |
|---|-------------|------------|-----------|----------------|
| Overall Value – The combination of features, purchase price, and operating costs.   | •••••       | •••••      | •••       | ••             |
| Cost Savings – The ongoing cost savings of operating the tooling system over time.  | •••••       | •••••      | •••       | •              |
| Ease of Use – Design features included in the tooling system that make it faster to install, simpler for the operator to set up, and more convenient to maintain. | •••••       | •••••      | ••        | •              |
| Interchangeability – The ability of a tooling system to be compatible with other popular systems from other major suppliers.                                      | •••••       | •••••      | •••       | ••             |
| Quick Set-up – Integral features which enable tools to be changed quickly and accurately, thus maximizing machine up time.  | •••••       | •••••      | •••       | ••             |
| Grind Life – The sum of the number of holes punched between regrinds AND the total grindable length of the punch tip before it needs to be replaced.              | •••••       | •••••      | •••       | ••             |
| Slug Free® Die – Advanced die geometry that prevents the slug from being pulled back to the top of the sheet.   | •••••       | •••••      | •••••     | •••••          |
| Features – Elements of a tool system that affects its ease of use, performance and longevity.   | •••••       | •••••      | •••       | ••             |
| Purchase Price – The initial purchase price of the system.  | •••••       | •••        | ••        | •              |

#### QUICK CHANGE

Mate Precision Tooling's ULTRA® QCT™ Thick Turret Tooling takes insert-style punching systems to a whole new level! With its durable patent-pending design, tool-less punch retention mechanism and M4PM™ steel inserts, you'll be on your way to faster, more cost effective punching in no time.

- Easy set-up & maintenance. No tools required!
- Longer lasting, superior insert performance
- Robust construction
- Simple



[Dimensions in Inches (mm)]



## PERFORMANCE

Mate's Ultra TEC® precision tooling system is a thick turret punching system which increases tool performance and flexibility, offers extended tool life and allows interchangeability with existing systems. Some features of the Ultra® system include:

- Premium high speed tool steel punches
- Quick tool change strippers – no tools required
- Relieved strippers for extended grind life
  - 0.118(3.00) for 1/2" A and 1-1/4" B station
  - 0.078(2.00) for 2" C, 3-1/2" D and 4-1/2" E stations
- Easy click length adjustment - no shims or tooling required
- Internal and external tool lubrication
- Hardened guides
- Slug Free® die design

**Option:** M4PM™ steel available in A and B station punches for superior performance and longevity. (See page 93 for details and additional information.)



## CONVENIENCE

Mate's Ultra XT™ precision tooling system is a thick turret punching system which increases tool performance and flexibility, offers extended tool life and allows interchangeability with existing systems. Features of the Mate Ultra XT™ system include:

- Premium high speed tool steel punches.
- Quick tool change strippers.
- Relieved strippers for extended grind life.
  - 0.118(3.00) for 1/2" A and 1-1/4" B station
- OEM compatible strippers 2" C, 3-1/2" D, 4-1/2" E and 6" F stations.
- Easy click length adjustment - no shims or tooling required.
- Internal and external lubrication.
- Slug Free® die design.



## ECONOMY

Original style thick turret tooling from Mate is OEM compatible, with several design enhancements, including:

- Premium high speed steel punches.
- Hexagon shaped punch heads in 1/2" A and 1-1/4" B stations for easier adjustment.
- Reversible spring retainers in 1/2" A and 1-1/4" B stations for additional tool life.
- Hardened guides for reduced friction and longer service life.
- Mate Slug Free® dies as standard.



## FORMING

Mate's Ultraform® tooling system features adjustable length holders for 1-1/4" B, 2" C, 3-1/2" D and 4-1/2" E stations. Each Ultraform® holder can be used with a variety of special forming inserts.

Each Mate Ultraform® holder includes a precise and convenient length adjustment mechanism to allow the fine adjustment of any forming tool to achieve high quality piece parts.

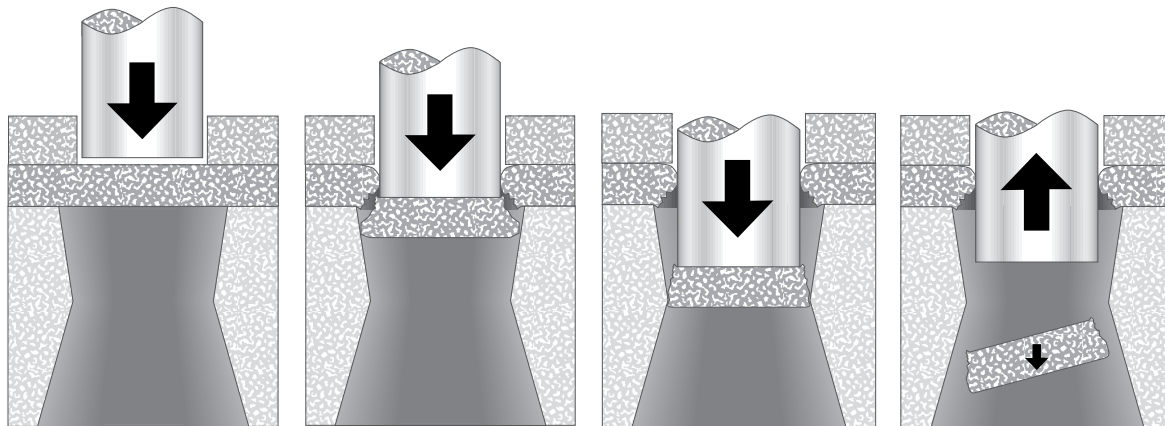
The benefits of the Ultraform® tooling system include reduced tooling cost, increased flexibility and ease of length adjustment for accurate forms.



**MATE SLUG FREE® DIES**

Mate Slug Free® dies eliminate slug pulling. Slug pulling is a condition where the slug returns to the top of the sheet during the stripping portion of the punching cycle. The slug comes between the punch and the top of the sheet on the next cycle. This causes damage to the piece part and the tooling. Slug Free® dies eliminate this problem.

The Slug Free® die has been designed with an opening that has a constriction point below the surface so the slug cannot return once it passes this point. Once the slug is separated from the punch, it is free to fall away from the punching area. Slug pulling is eliminated.



Material held securely by stripper before punch makes contact.

Punch penetrates the material. Slug fractures away from sheet.

Pressure point constricts slug. Punch stroke bottoms out as slug squeezes past pressure point.

Punch retracts and slug is free to fall down and away through exit taper of the Slug Free® die.

**MATE SLUG FREE LIGHT™ DIES FOR THIN SHEET METAL**

Mate Slug Free Light™ thick turret dies are designed to eliminate slug pulling when punching thin sheet metal material, where the recommended die clearance is less than 0.008(0.20).

The Mate Slug Free Light™ die works by introducing a series of small protrusions around the edge of the slug. Each protrusion is created by a small angled notch cut into the die opening (See photo 1). As the slug passes through the die, the position of the protrusion relative to the notch changes slightly. This change creates slight pressure between the slug and the die land, which traps the slug into the die and eliminates the possibility of the slug being pulled back through the die. By eliminating slug pulling with every punch cycle, the piece part quality is improved and tool life is increased.

Mate Slug Free Light™ dies are available for thick turret tooling and are particularly effective when the die clearance is less than 0.008(0.20).



Mate Slug Free Light™ notches are cut at an angle to create a series of protrusions on the slug. As the slug moves through the die, the protrusions become trapped against the die land to prevent the slug pulling back on to the sheet. (Image enhanced for additional clarity)

- Eliminate slug pulling
- Reduce tool breakage
- Improve tool life
- Increase quality

[Dimensions in Inches (mm)]

## ULTRA® PRECISION TOOLING SYSTEM – DESIGNED TO DRAMATICALLY IMPROVE ANY PUNCHING OPERATION

- 0.237(6.04) more grind life than original style tooling.
- No tools needed for quick disassembly and assembly of guide, punch and stripper.
- Quick length adjustment significantly reduces change over and set-up times.
- Fully compatible with alternative systems.
- Superior internal and external spiral grooved lubrication system ensures uniform distribution of oil for smooth friction free operation of punch to guide and guide to turret bore.
- Hardened and ground guides stay round and true to size which greatly reduces turret bore wear.
- Slug Free® dies eliminate slug pulling.

### PUNCHES:

- Premium high speed tool steel for extended life between regrinds and maximum productivity.
- 1/4 degree back taper and near polished flanks to reduce friction, eliminate galling and extend punch life.
- External lubrication grooves to allow fluid flow.
- Available in multiple styles:
  - Ultra TEC® with lubrication grooves.
  - Ultra® QCT™ with lubrication grooves.
  - Ultra® Metric (original) style punches.
  - Inch style (1-1/4" B station only).

**Option:** M4PM™ steel available in A and B station punches for superior performance and longevity. (See page 89 for details and additional information.)

### STRIPPERS:

- Relieved to allow 0.118(3.00) extra grind life.
- Quick-change mechanism to allow rapid tool change.
- Rounded edges to minimize sheet marking.

### SLUG FREE® DIES:

- Slug Free die geometry eliminates slug pulling.
- Highly wear resistant, chrome air hardened tool steel
- Uniform clearance radii in die corners improve edge quality.
- Superior roundness and flatness with exceptional die strength.
- Up to 0.125(3.20) grind life.

### CANISTER ASSEMBLIES:

- Quick length adjustment with positive engagement with the guide.
- Uniform spring pressure for reliable stripping.
- Available in multiple styles:
  - Ultra TEC® for use with Ultra TEC® and Ultra® QCT™ punches.
  - Ultra® Metric (Original) style punches.
  - Inch style (1-1/4" B station only) for Inch style punches.

### UNIVERSAL GUIDES:

- Quick-change mechanism - no tools required.
- Tool remains assembled during tool length adjustment.
- Internal and external lubrication to reduce friction.
- Hardened and ground to reduce wear.
- Available in two styles:
  - Shaped – multiple precision internal keyways for shaped punches.
  - Round – internal keyway for round punches.



- Long Lasting
- Freedom
- Flexibility
- Convenience
- Economy
- Quick adjustments
- Lowest cost per hole

[Dimensions in Inches (mm)]

## ULTRA® PRECISION TOOLING SYSTEM – DESIGNED TO DRAMATICALLY IMPROVE ANY PUNCHING OPERATION

- 0.212(5.38) more punch grind life than original style tooling.
- Quick change strippers.
- Quick length adjustment.
- Internal lubrication within punch guide.
- External lubrication between guide and turret bore ensures uniform distribution of oil within the turret bore.
- Hardened guides to reduce turret bore wear.
- Slug Free® dies eliminate slug pulling.

### PUNCHES:

- Premium high speed tool steel for extended life between regrinds and
- 1/4 degree back taper and near polished flanks to reduce friction and
- Superior angularity, concentricity, and dimensional accuracy.
- Robust full-body design.
- Fully compatible with original style thick turret tooling.

### STRIPPERS:

- Relieved to allow 0.078(2.00) extra grind life.
- Recessed to allow collection of lubrication fluid at punch tip.
- Quick-change mechanism to allow rapid tool change.
- Rounded edges to minimize sheet marking.
- Optional urethane stripper pads to eliminate sheet marking.

### SLUG FREE® DIES:

- Highly wear resistant, chrome air hardened tool steel to balance hardness and toughness.
- Slug Free® die geometry eliminates slug pulling.
- Uniform clearance radii in die corners to improve edge quality.
- Precision orientation keyway.
- Up to 0.125(3.20) grind life.
- Superior roundness and flatness with exceptional die strength.

### PUNCH GUIDE ASSEMBLY:

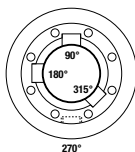
- Quick-change stripper release mechanism allows stripper to be removed easily, without tools.
- Quick length adjustment mechanism on the side of the guide allows the punch length to be adjusted without disassembly.
- Hardened and ground to stay round and true to size to greatly reduce turret bore wear.
- Internal and external lubrication grooves to reduce friction.
- High performance disc springs to optimize stripping force throughout the service life of the machine.



[Dimensions in Inches (mm)]

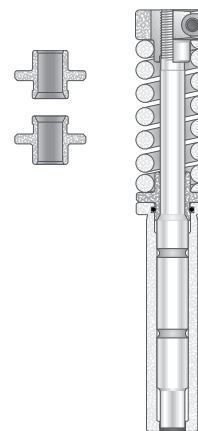
## SIDE BY SIDE COMPARISON

## Ultra TEC®



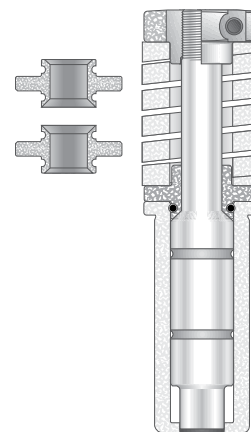
## 1/2" A STATION

|   |                              |   |
|---|------------------------------|---|
| No tools required.<br>Each 'click' is<br>0.006(0.15)                  | <b>LENGTH<br/>ADJUSTMENT</b> | Tools needed<br>for adjustment                  |
| Self contained<br>in canister   | <b>SPRING<br/>ASSEMBLY</b>   | Spring retainer with<br>reversible design       |
| Uses Ultra®, Ultra® QCT™ or<br>Original style                         | <b>PUNCH</b>                 | Original<br>style                               |
| Snap in, self locking<br>design. 0.118(3.00)<br>additional grind life | <b>STRIPPER</b>              | One piece<br>punch guide                        |
| 3 internal slots:<br>90°, 180° and 315°.<br>1 external slot at 270°   | <b>ANGLE<br/>ADJUSTMENT</b>  | External slots:<br>1 for rounds<br>2 for shapes |
| Quick release<br>locking mechanism                                    | <b>ASSEMBLY</b>              | O-ring<br>snap fit                              |

MATE  
ORIGINAL STYLE

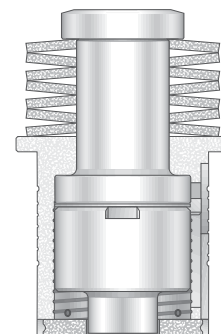
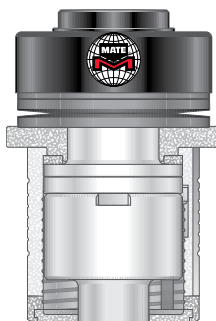
## 1-1/4" B STATION

|   |                              |   |
|---|------------------------------|---|
| No tools required.<br>Each 'click' is<br>0.008(0.20)                                  | <b>LENGTH<br/>ADJUSTMENT</b> | Tools needed<br>for adjustment  |
| Self contained<br>in canister   | <b>SPRING<br/>ASSEMBLY</b>   | Spring retainer with<br>reversible design                                 |
| Uses Ultra®, Ultra® QCT™,<br>Metric (Original) Style, Inch<br>Style or HP (Series 90) | <b>PUNCH</b>                 | Original<br>style   |
| Snap in, self locking<br>design. 0.118(3.00)<br>additional grind life                 | <b>STRIPPER</b>              | One piece<br>punch guide  |
| 5 internal slots: 0°, 90°,<br>180°, 225° and 270°<br>1 external slot at 270°          | <b>ANGLE<br/>ADJUSTMENT</b>  | External slots: 1 for rounds,<br>2 for shapes<br>and 4 for special shapes |
| Quick release<br>locking mechanism  | <b>ASSEMBLY</b>              | O-ring<br>snap fit  |



## 2" C, 3-1/2" D, 4-1/2" E STATION

|   |                              |   |
|---|------------------------------|---|
| No tools or shims required.<br>Each 'click' is 0.008(0.20)*           | <b>LENGTH<br/>ADJUSTMENT</b> | Tools and shims needed<br>for adjustment      |
| Uses Ultra®, original<br>style or HP (Series 90)**                    | <b>PUNCH</b>                 | Original<br>style                             |
| Snap in, self locking<br>design. 0.079(2.00)<br>additional grind life | <b>STRIPPER</b>              | Stripper held in place<br>with external clips |
| 0° and 90°<br>Two External Slots                                      | <b>ANGLE<br/>ADJUSTMENT</b>  | 0° and 90°<br>Two External Slots              |
| Ease out design<br>helps punch removal                                | <b>ASSEMBLY</b>              | Tools required to<br>make adjustments         |



\* Holders made prior to June 1999 have length  
adjustment settings of 0.016(0.40) per 'click'

\*\* Requires punch adapter and/or drawbolt change

## STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):

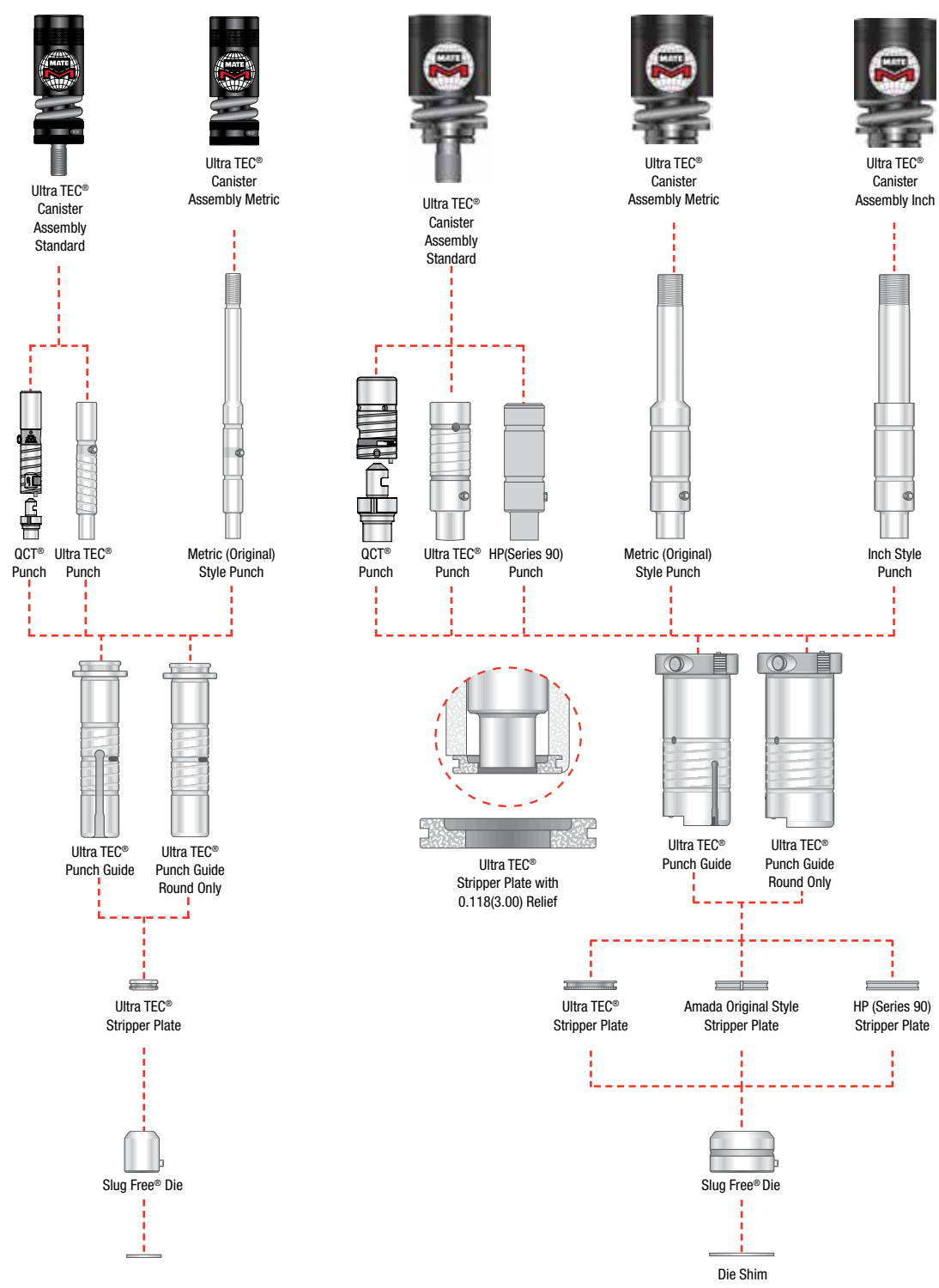
|           |        |          |       |         |         |      |            |            |          |         |
|-----------|--------|----------|-------|---------|---------|------|------------|------------|----------|---------|
| rectangle | square | quad "D" | round | hexagon | octagon | oval | single "D" | double "D" | triangle | diamond |
| 1         | 3      | A05      | 0     | N       | P       | 2    | 4          | 5          | C08      | C07     |

[Dimensions in Inches (mm)]



1/2" A STATION

1-1/4" B STATION



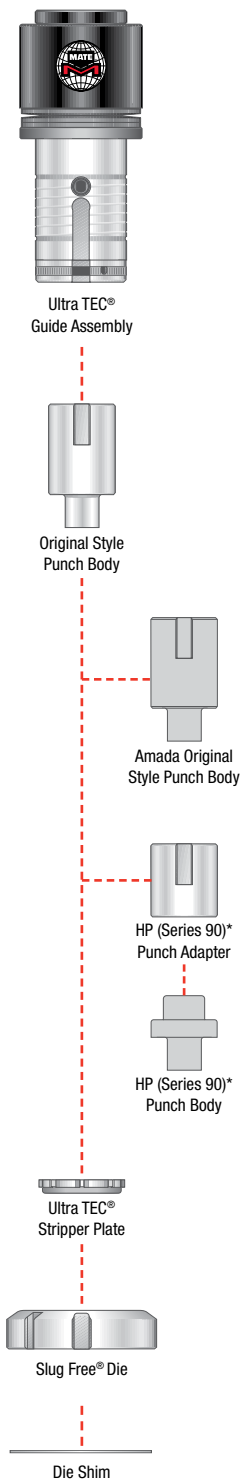
FEATURES INCLUDE:

- Extended grind life
- Interchangeable components
- Multiple angle settings
- Quick length adjustment
- Quick tool change
- Premium high speed tool steel punches
- Slug Free® die

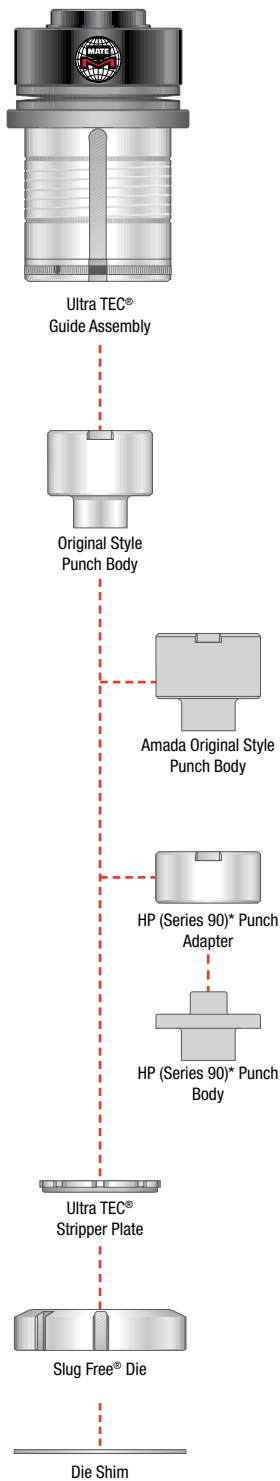
[Dimensions in Inches (mm)]



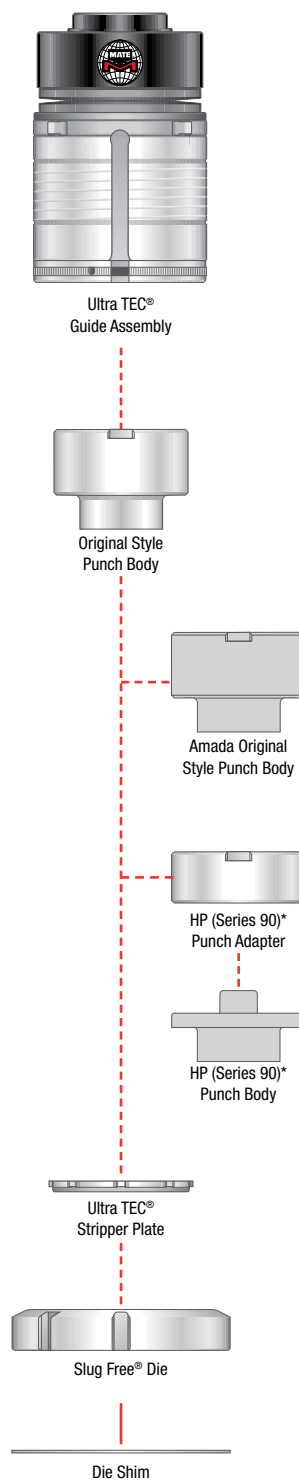
## 2" C STATION



## 3-1/2" D STATION



## 4-1/2" E STATION



### FEATURES INCLUDE:

- Extended grind life
- Interchangeable components
- Multiple angle settings
- Quick length adjustment
- Quick tool change
- Premium high speed tool steel punches
- Slug Free® die

[Dimensions in Inches (mm)]

QUICK CHANGE TOOLING

Mate Precision Tooling's Ultra® QCT™ thick turret tooling takes insert-style punching systems to a whole new level! With its durable patent-pending design, tool-less punch retention mechanism and M4PM™ steel inserts, you'll be on your way to faster, more cost effective punching in no time.

EASY SET-UP & MAINTENANCE. NO TOOLS REQUIRED!

Ultra® QCT™ is designed to minimize effort and maximize uptime. There are no tools to use, break or lose to change the punch insert. Simply flip the durable latch to remove and snap the new insert into place. It's really that easy!

Maintenance is a breeze, too. Use compressed air to clean away any debris without damage.

LONGER LASTING, SUPERIOR INSERT PERFORMANCE

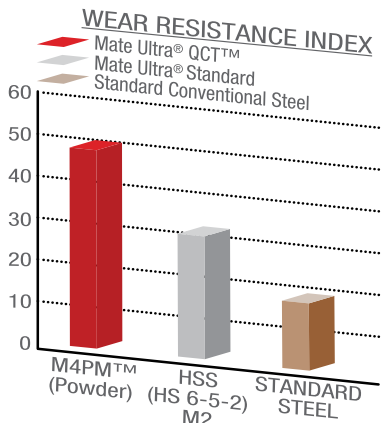
Ultra® QCT™ punch inserts are made from Mate's proprietary M4PM™ steel, the longest lasting tool steel in the industry. At .770(19,56), the SBR is longer than our standard length punches, for more grind life. The punch is keyed at the perimeter providing better angularity control. Since the punch insert OD interfaces with the guide ID, punch guiding is superior, too.

ROBUST CONSTRUCTION

The punch driver is made from high speed steel and comes standard with Mate's proprietary next generation SuperMax™ coating for extended life. To ensure durability, Ultra® QCT™ has undergone extensive product testing in customer locations.

SIMPLE

With Ultra® QCT™ Mate has simplified your tooling storage needs. Only one punch driver is required for rounds or shapes. Ultra® QCT™ works with all existing Ultra TEC®, Ultra XT™ and Ultra® Fully Guided guides and canisters, so there's no need to purchase a special or captive system. Punch inserts take up less space than standard punches and waste less material.



Patent pending, durable design that's easy to maintain

Punch driver manufactured from tough material, then coated with SuperMax™ for extended life.

Punch insert made from long-lasting M4PM™ tool steel

Longer SBR than Mate standard length punches for more grind life.

Fully compatible with standard Ultra® system

One driver for rounds and shapes simplifies inventory

Tool-less punch retention mechanism that's simple and intuitive

Punch keyed at perimeter of the tool, not the center for better angularity control

Punch shoulder still guided by guide when punching

Green: inserts require less storage space and wastes less material

[Dimensions in Inches (mm)]



## AVAILABLE OPTIONS

| GENERAL   |  |
|---|--|
| Radius Corners                                      |  |
| Non-Standard Straight before Radius (SBR) Dimension |  |
| Special Angle Settings                              |  |
| Optional Shear                                      |  |
|   |  |
| SMALL DIAMETER ROUND TOOLS                          |  |
| Diameter 0.020(0,51) to 0.061(1,55)                 |  |
| Diameter 0.062(1,56) to 0.092(2,34)                 |  |
|   |  |
| NARROW WIDTH SHAPE TOOLS                            |  |
| Widths under 0.079(2,00)                            |  |
|   |  |
| SUPERMAX™ COATING                                   |  |
| ½" A Station  |  |
| 1-¼" B Station                                      |  |
|   |  |
| MAXIMA™ COATING                                     |  |
| ½" A Station  |  |
| 1-¼" B Station                                      |  |

## ORDER GUIDE

| PART NUMBER          | DESCRIPTION                                 |
|----------------------|---|
| MATE02401            | ULTRA® QCT™ B Station Punch Driver Assembly |
| MATE02404            | ULTRA® QCT™ A Station Punch Driver Assembly |
| PUNCH INSERTS        |   |
| PAQB0A               | ULTRA® QCT™ B Station Round Punch Insert    |
| PAQB_A               | ULTRA® QCT™ B Station Shaped Punch Insert   |
| PAQA0A               | ULTRA® QCT™ A Station Round Punch Insert    |
| PAQA_A               | ULTRA® QCT™ A Station Shaped Punch Insert   |
| Ultra TEC® STRIPPERS |   |
| S6KA0A               | Ultra TEC Stripper Plate, A Station, Round  |
| S6KA_A               | Ultra TEC Stripper Plate, A Station, Shape  |
| S6KB0A               | Ultra TEC Stripper Plate, B Station, Round  |
| S6KB_A               | Ultra TEC Stripper Plate, B Station, Shape  |
| Slug Free® DIES      |   |
| D0AA0A               | Slug Free Die, A Station, Round             |
| D0AA_A               | Slug Free Die, A Station, Shape             |
| D0AB0A               | Slug Free Die, B Station, Round             |
| D0AB_A               | Slug Free Die, B Station, Shape             |
| SHARPENING FIXTURE   |   |
| MATE02469            | Sharpening Fixture, A and B Stations        |

| TONNAGE LIMITATIONS |                                  |
|---------------------|----------------------------------|
| A STATION           | 5 U.S. TONS / 4.54 METRIC TONS   |
| B STATION           | 14 U.S. TONS / 12.70 METRIC TONS |

[Dimensions in Inches (mm)]

## AVAILABLE SHAPES

| STANDARD  | SPECIAL                          |
|-----------|----------------------------------|
| Round     | Arc Oval                         |
| Rectangle | Arc U-Shape                      |
| Oval      | Band aid                         |
| Square    | Break-Away                       |
| Single D  | Cable Opening                    |
| Double D  | Cable Opening with Tabs          |
| Hexagon   | Bi-Diameter                      |
| Octagon   | Tri-Diameter                     |
|           | Quad-Diameter                    |
|           | Diamond                          |
|           | Ellipse                          |
|           | Football                         |
|           | Keyways                          |
|           | Keyholes                         |
|           | Parallelogram                    |
|           | Pentagon                         |
|           | Quad D                           |
|           | 2-Way Radius                     |
|           | 4-Way Radius                     |
|           | 9-Way Radius                     |
|           | Rect/Oval                        |
|           | Double Rectangle                 |
|           | Rectangle with Chamfered Corners |
|           | Rectangle with Rounded Corners   |
|           | Rectangle with Tabs              |
|           | Rectangle with Notch             |
|           | Teardrop                         |
|           | Trapezoid                        |
|           | Triangle                         |

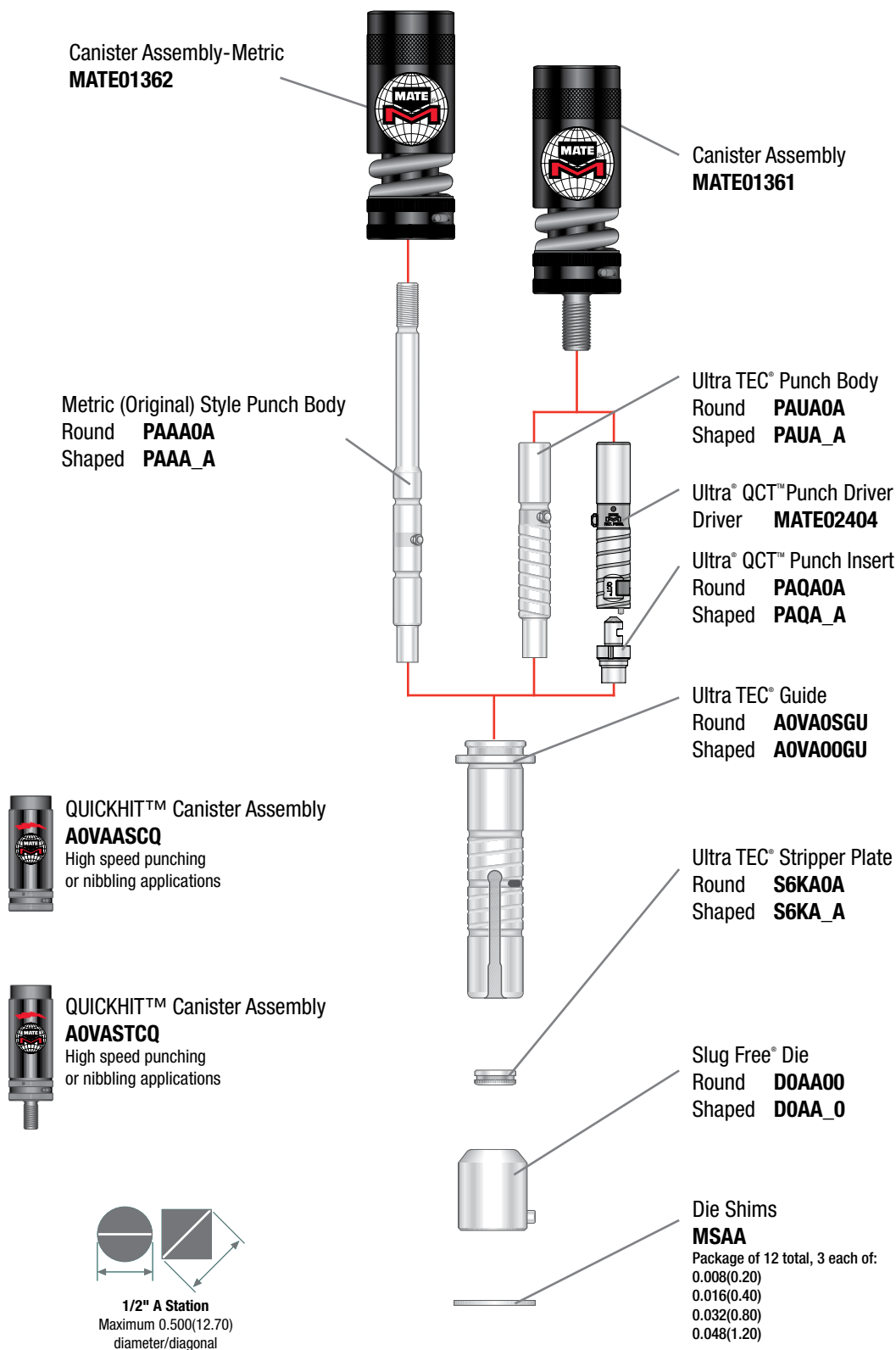


## Sharpening Fixture for ULTRA® QCT™ Punch Inserts

Designed for use with the Premia™ Sharpening System or ValuGrind™ to sharpen ULTRA® QCT™ A & B station punch inserts.

PART NUMBER: MATE02469

ULTRA TEC® 1/2" A STATION ASSEMBLY



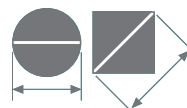
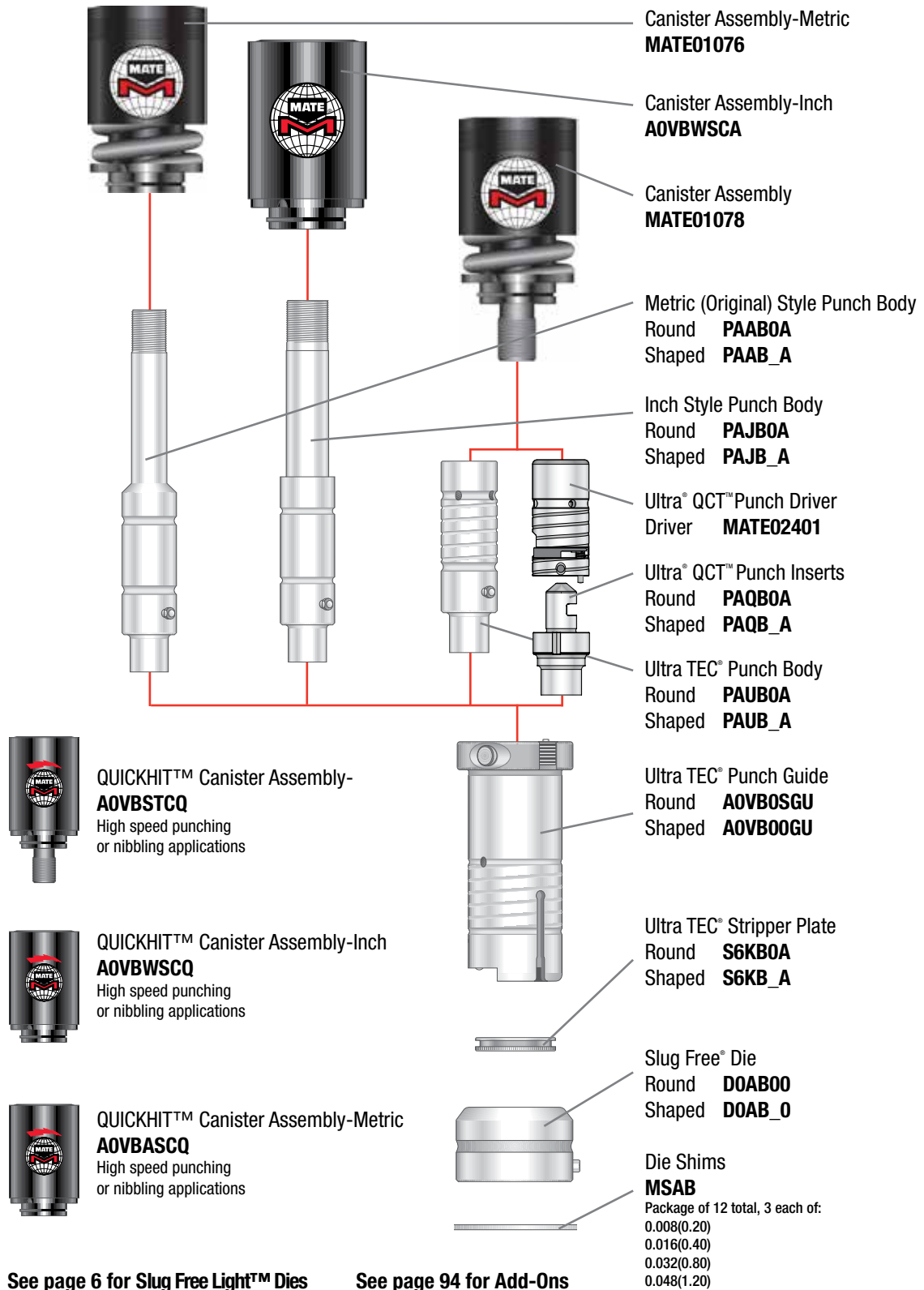
STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):

|           |        |          |       |         |         |      |            |            |          |         |
|-----------|--------|----------|-------|---------|---------|------|------------|------------|----------|---------|
| rectangle | square | quad "D" | round | hexagon | octagon | oval | single "D" | double "D" | triangle | diamond |
| 1         | 3      | A05      | 0     | N       | P       | 2    | 4          | 5          | C08      | C07     |

[Dimensions in Inches (mm)]



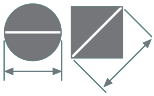




**1-1/4" B Station**  
Maximum 1.250(31.75)  
diameter/diagonal

[Dimensions in Inches (mm)]

2" C STATION



Maximum  
2.000(50.80)  
diameter/diagonal



Ultra TEC® Guide Assembly  
**AGVC1Y**



Original Style Punch Body  
Round **PAAC0A**  
Shaped **PAAC\_A**



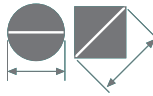
Ultra TEC® Stripper Plate  
Round **S6KC0A**  
Shaped **S6KC\_A**



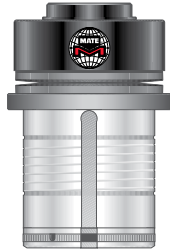
Slug Free® Die  
Round **DOAC00**  
Shaped **DOAC\_0**

Die Shims  
**MSAC**  
Package 3 each:  
0.016(0.40), 0.032(0.80), 0.048(1.20)

3-1/2" D STATION



Maximum  
3.500(88.90)  
diameter/diagonal



Ultra TEC® Guide Assembly  
**AGVD1Y**



Original Style Punch Body  
Round **PAAD0A**  
Shaped **PAAD\_A**



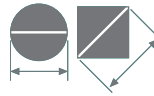
Ultra TEC® Stripper Plate  
Round **S6KD0A**  
Shaped **S6KD\_A**



Slug Free® Die  
Round **DOAD00**  
Shaped **DOAD\_0**

Die Shims  
**MSAD**  
Package 3 each:  
0.016(0.40), 0.032(0.80), 0.048(1.20)

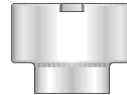
4-1/2" E STATION



Maximum  
4.500(114.30)  
diameter/diagonal



Ultra TEC® Guide Assembly  
**AGVERZ**



Original Style Punch Body  
Round **PAAE0A**  
Shaped **PAAE\_A**



Ultra TEC® Stripper Plate  
Round **S6KE0A**  
Shaped **S6KE\_A**



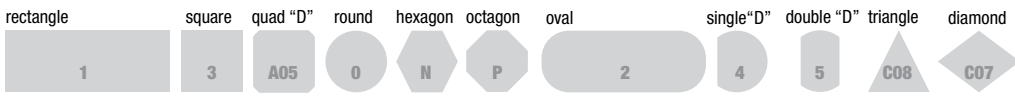
Slug Free® Die  
Round **DOAE00**  
Shaped **DOAE\_0**

Die Shims  
**MSAE**  
Package 3 each:  
0.016(0.40), 0.032(0.80), 0.048(1.20)

See page 6 for Slug Free Light™ Dies

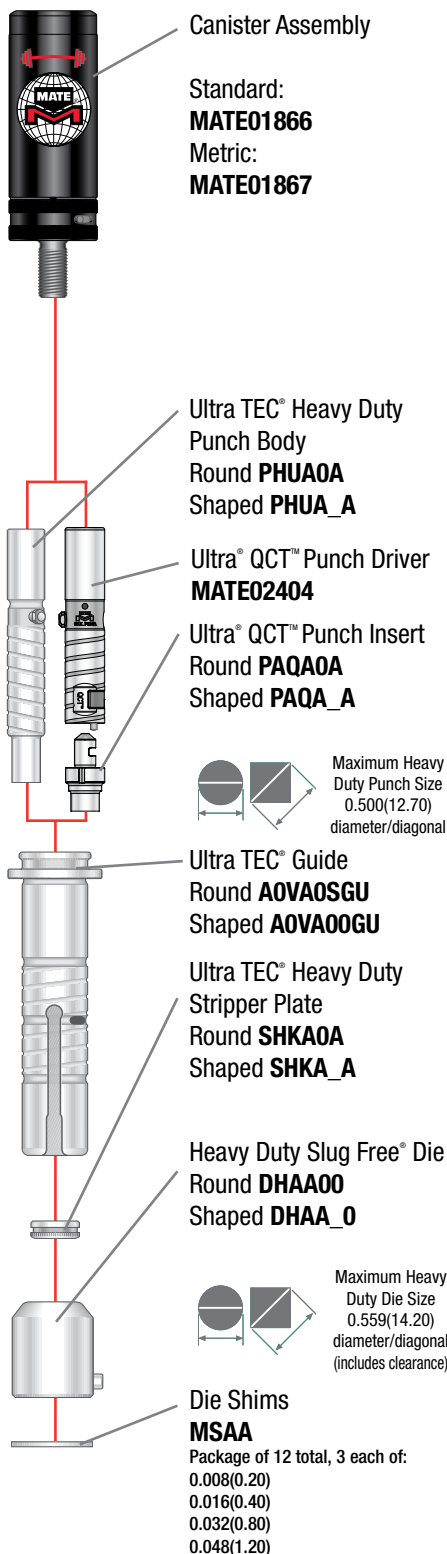
See page 94 for Add-Ons

STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):

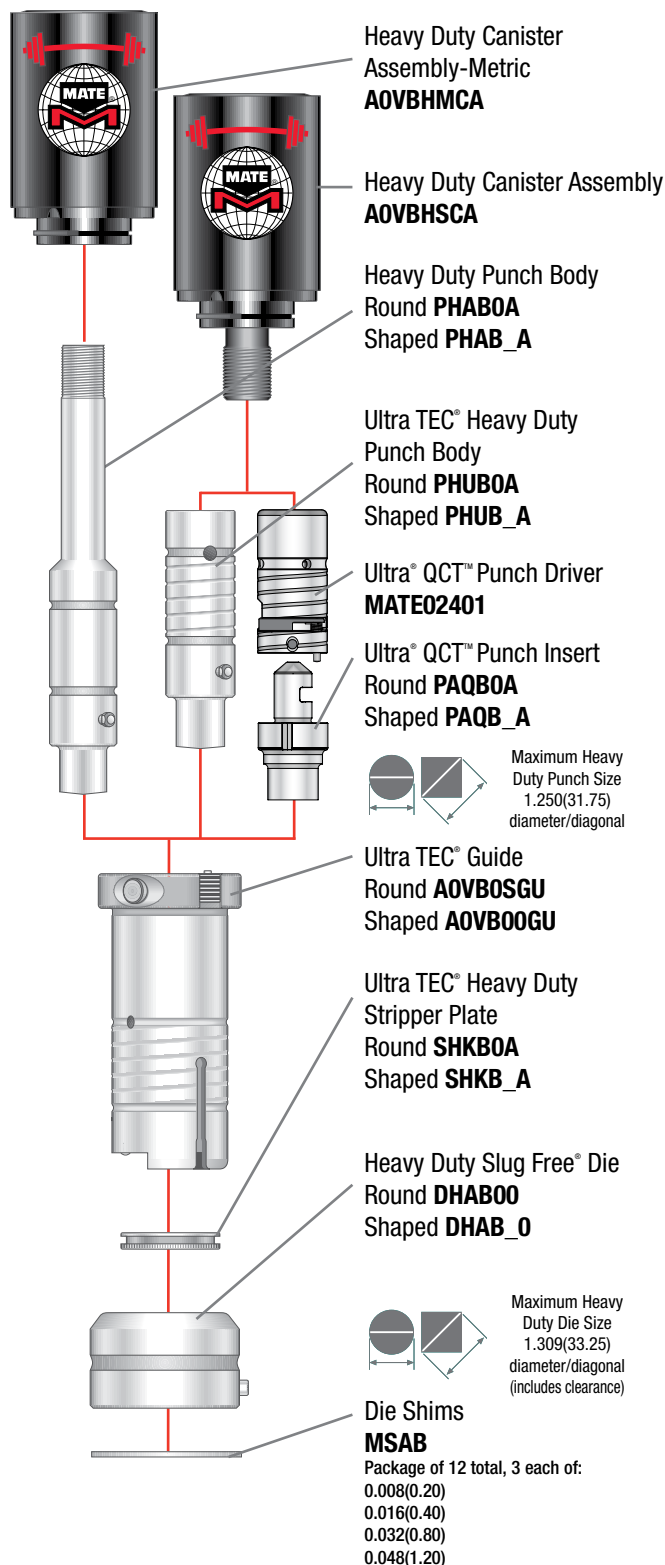


[Dimensions in Inches (mm)]

## 1/2" A STATION



## 1-1/4" B STATION



Minimum width/diameter in heavy duty is 0.250(6.35)

### Features include:

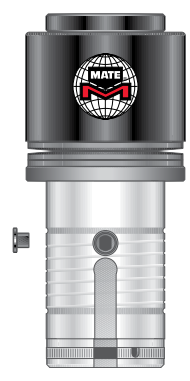
- 1 Degree back taper on punches (per side)
- Quick tool change
- Heavy duty Slug Free® die design
- Premium high speed tool steel punches
  - Heavy duty springs (1-1/4" B Station)
- Rooftop shear
- Quick length adjustment
- HD designation marked on heavy duty die

[Dimensions in Inches (mm)]

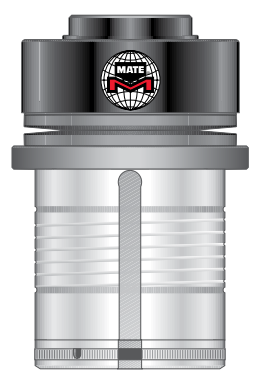
2" C STATION

3-1/2" D STATION

4-1/2" E STATION



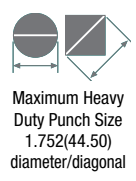
Ultra TEC® Guide Assembly  
**AGVC1Y**



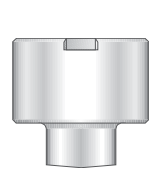
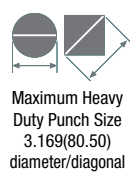
Ultra TEC® Guide Assembly  
**AGVD1Y**



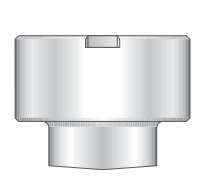
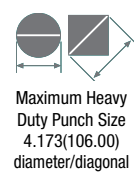
Ultra TEC® Guide Assembly  
**AGVERZ**



Heavy Duty Punch Body  
Round **PHAC0A**  
Shaped **PHAC\_A**



Heavy Duty Punch Body  
Round **PHAD0A**  
Shaped **PHAD\_A**



Heavy Duty Punch Body  
Round **PHAE0A**  
Shaped **PHAE\_A**



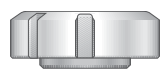
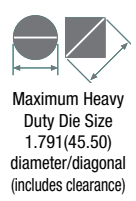
Ultra TEC® Heavy Duty  
Stripper Plate  
Round **SHKCOA**  
Shaped **SHKC\_A**



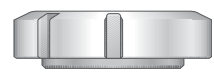
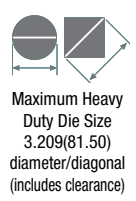
Ultra TEC® Heavy Duty  
Stripper Plate  
Round **SHKDOA**  
Shaped **SHKD\_A**



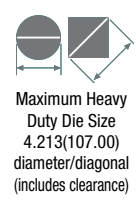
Ultra TEC® Heavy Duty  
Stripper Plate  
Round **SHKE0A**  
Shaped **SHKE\_A**



Heavy Duty Slug Free® Die  
Round **DHAC00**  
Shaped **DHAC\_0**



Heavy Duty Slug Free® Die  
Round **DHAD00**  
Shaped **DHAD\_0**



Heavy Duty Slug Free® Die  
Round **DHAE00**  
Shaped **DHAE\_0**

Minimum width/diameter in heavy duty is 0.250(6.35)

See page 94 for Add-Ons



[Dimensions in Inches (mm)]



## 1/2" A STATION



Ultra Light™ Spring  
Canister Ultra® Style  
**MATE00276**

Ultra Light™ Spring  
Canister Metric Style  
**MATE00278**

Ultra Light™ 1/2" A station canisters apply 70% of the stripping force of the standard Ultra TEC® 1/2" A station canisters.

## 1-1/4" B STATION

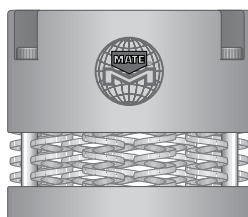


Ultra Light™ Spring  
Canister Ultra® Style  
**MATE00277**

Ultra Light™ Spring  
Canister Metric Style  
**MATE00279**

Ultra Light™ 1-1/4" B station canisters apply 60% of the stripping force of the standard Ultra TEC® 1-1/4" B station canisters.

## 2" C STATION

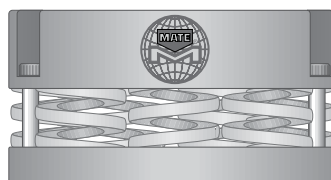


Ultra Light™ Spring Assembly  
**MATE00038**

(Package of 9)  
Heavy Pressure  
Gold Springs\*  
**MATE00280**

MATE00038 is assembled with 9 medium pressure blue springs.

## 3-1/2" D AND 4-1/2" E STATION



Ultra Light™ Spring Assembly  
**MATE00033**

(Package of 9)  
Medium Heavy Pressure  
Red Springs\*  
**MATE00281**

MATE00033 is assembled with 9 medium pressure blue springs.

\*See page 44 for details on spring selection.

### STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):

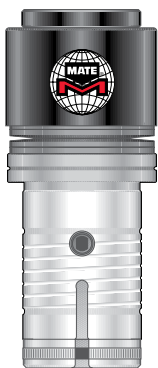


[Dimensions in Inches (mm)]

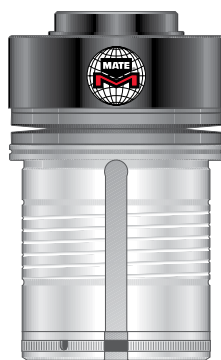


**2" C STATION**

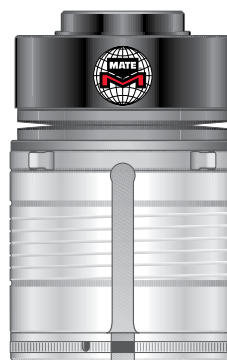
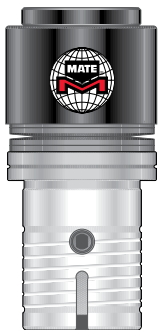
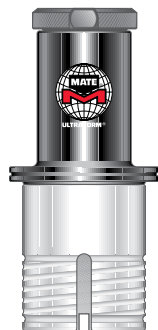
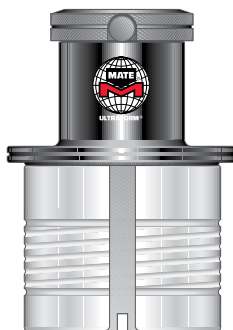
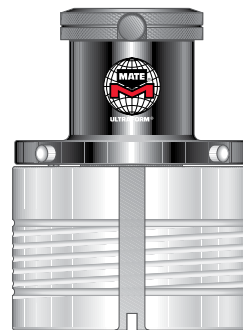
0.250(6.35) wide keyway

Ultra® LVD Guide Assembly  
**LGVC1****3-1/2" D STATION**

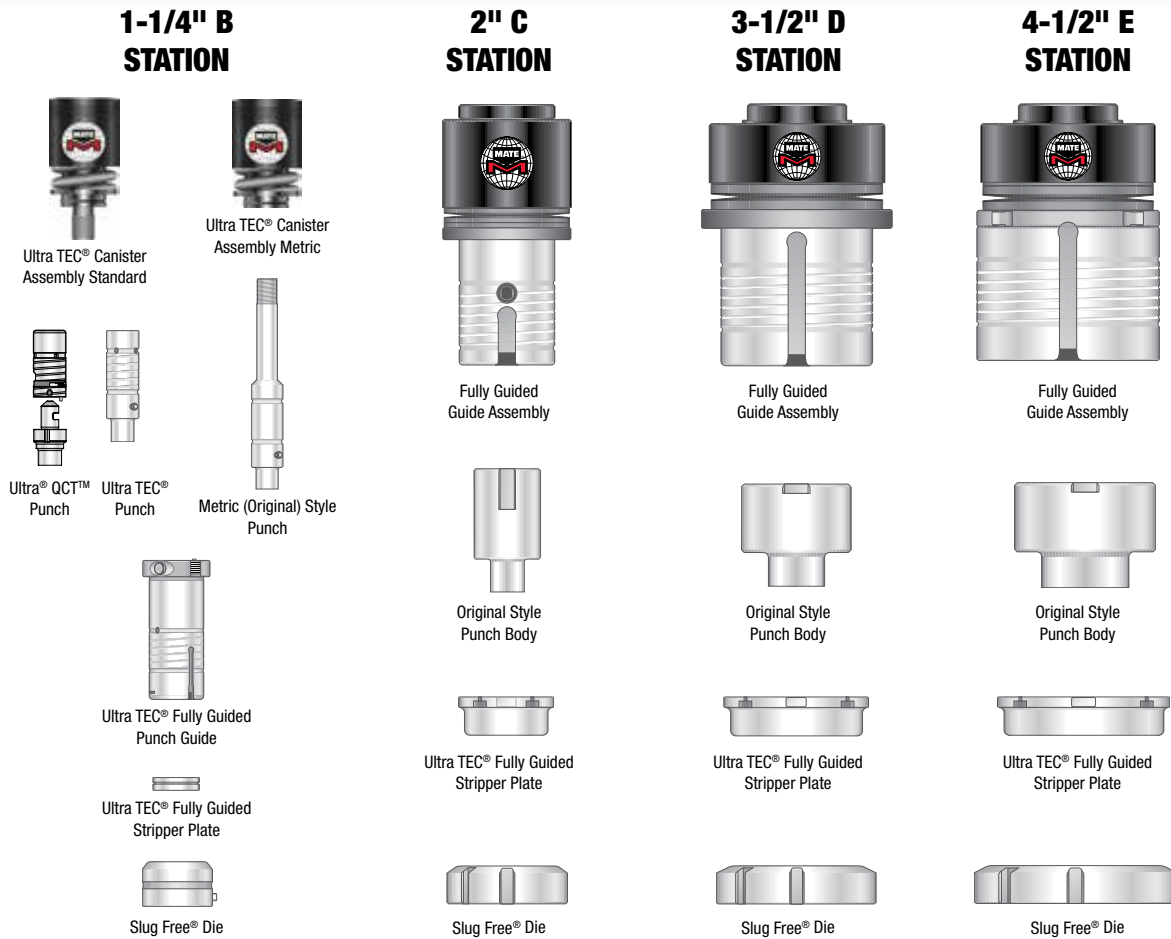
0.512(13.00) wide keyway

Ultra® LVD Guide Assembly  
**LGVD1****4-1/2" E STATION**

0.512(13.00) wide keyway

Ultra® LVD Guide Assembly  
**LGVE1**Ultra® LVD Fully Guided  
Guide Assembly\*  
**LGVS1**Ultra® LVD Fully Guided  
Guide Assembly\*\*  
**LGVT1**Ultra® LVD Fully Guided  
Guide Assembly  
**LGVU1**Ultraform® LVD Style Forming Unit  
Guide Assembly  
**LFKC2**Ultraform® LVD Style Forming Unit  
Guide Assembly  
**LFKD2**Ultraform® LVD Style Forming Unit  
Guide Assembly  
**LFKE2****AOLEH**\*Also Available  
(2" C Station Only)  
**LGVS3**  
External keyways at  
0°, 45° and 90°\*\*Also Available  
(3-1/2" D Station Only)  
**LGVT3**  
External keyways at  
0°, 45° and 90°

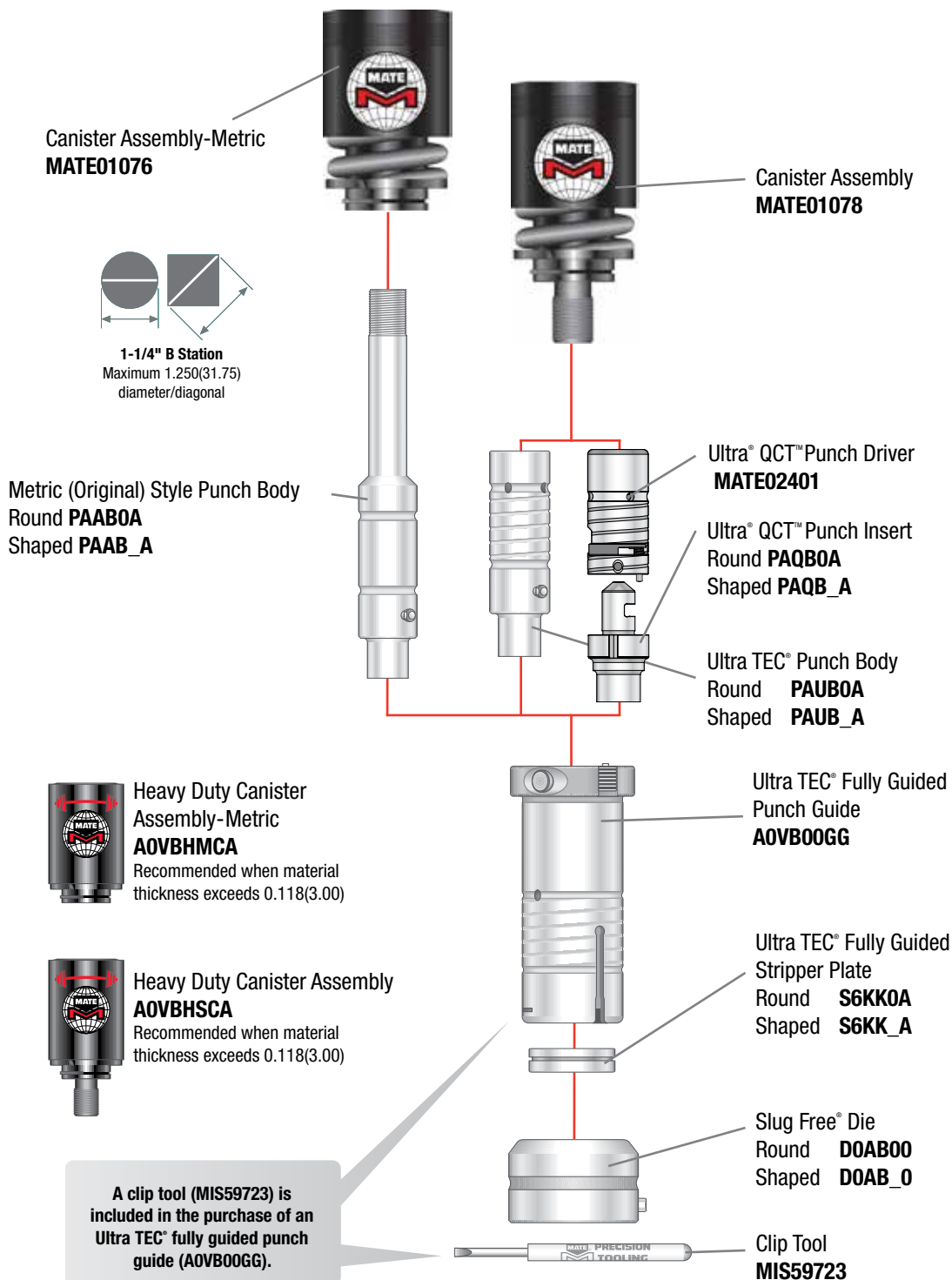
[Dimensions in Inches (mm)]



- Fully guided assembly**  
 Accurate and close tolerances between guide and stripper hold punches rigid, control against hole distortion and saw tothing.
- Premium high speed tool steel punches at 60-62 Rockwell C**  
 Specially formulated high speed steel and specially developed heat treatment processes result in unusually high tool performance, superior dimensional accuracy and maximum tool life.
- Stripper opening 0.0015(0.04) TC to point**  
 Guiding at punch point supports punches, increases hole accuracy, improves stripping and prevents scrap from rising into the assembly.
- Quick length adjustment**  
 The external quick length adjustment button on the side of the guide allows the punch length to be adjusted without disassembly.
- Hardened and ground guide**  
 Reduces abrasive action of punching, diffuses heat effectively, resists galling, extends tool life, increases turret life and improves up time.
- Interior and exterior spiral grease grooves**  
 Even and consistent tool lubrication increases tool life.
- Tool Lubrication**  
 Interior vertical fluid grooves and fluid through holes provide even and efficient transfer of lubrication fluid to internal surfaces and to external guide surface area, increases lubrication and tool life.
- Slug Free® die design**  
 Clearing the slug every cycle eliminates slug pulling, extends tool life, improves piece part quality and reduces scrap.

[Dimensions in Inches (mm)]

## 1-1/4" B STATION



See page 6 for Slug Free Light™ Dies

See page 94 for Add-Ons

## STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):

| rectangle | square | quad "D" | round | hexagon | octagon | oval | single "D" | double "D" | triangle | diamond |
|-----------|--------|----------|-------|---------|---------|------|------------|------------|----------|---------|
| 1         | 3      | A05      | 0     | N       | P       | 2    | 4          | 5          | C08      | C07     |

[Dimensions in Inches (mm)]

## 2" C STATION



Maximum  
2.000(50.80)  
diameter/diagonal

Ultra TEC® Fully Guided  
Guide Assembly\*  
**AGVS1Z**



Original Style Punch Body  
Round **PAAC0A**  
Shaped **PAAC\_A**



Fully Guided Stripper Plate  
Round **S2KL0A**  
Shaped **S2KL\_A**

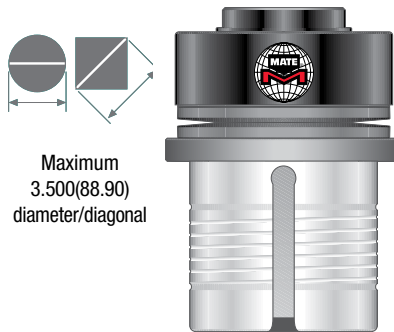


Slug Free® Die  
Round **DOAC00**  
Shaped **DOAC\_0**



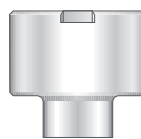
\*Also Available  
(2" C Station Only)  
**AGVS3Z**  
External keyways at  
0°, 45° and 90°

## 3-1/2" D STATION



Maximum  
3.500(88.90)  
diameter/diagonal

Ultra TEC® Fully Guided  
Guide Assembly\*\*  
**AGVT1Y**



Original Style Punch Body  
Round **PAAD0A**  
Shaped **PAAD\_A**



Fully Guided Stripper Plate  
Round **S2KM0A**  
Shaped **S2KM\_A**



Slug Free® Die  
Round **DOAD00**  
Shaped **DOAD\_0**



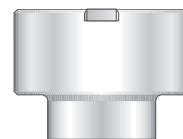
\*\*Also Available  
(3-1/2" D Station Only)  
**AGVT3Y**  
External keyways at  
0°, 45° and 90°

## 4-1/2" E STATION



Maximum  
4.500(114.30)  
diameter/diagonal

Ultra TEC® Fully Guided  
Guide Assembly  
**AGVURZ**



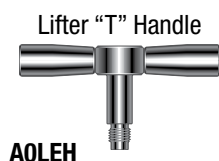
Original Style Punch Body  
Round **PAAE0A**  
Shaped **PAAE\_A**



Fully Guided Stripper Plate  
Round **S2KN0A**  
Shaped **S2KN\_A**



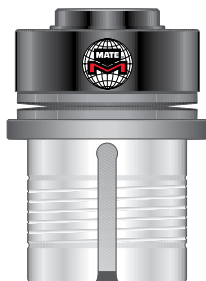
Slug Free® Die  
Round **DOAE00**  
Shaped **DOAE\_0**



**AOLEH**

[Dimensions in Inches (mm)]

## 3-1/2" D STATION



Ultra TEC® Fully Guided  
Clamp Clearing  
Guide Assembly



Punch Retainer



Slitting Insert



"DD" Stripper Plate



"D" Stripper Plate



"DD" Clamp Clearing  
Slug Free® Die



"D" Clamp Clearing  
Slug Free® Die

- **Fully guided assembly**

Accurate and close tolerances between guide and stripper hold punches rigid, control against hole distortion and saw toothing.

- **Premium high speed tool steel punches at 60-62 Rockwell C**

Specially formulated M4PM™ high speed steel and specially developed heat treatment processes result in unusually high tool performance, superior dimensional accuracy and maximum tool life.

- **Stripper opening 0.0015(0.04) TC to point**

Guiding at punch point supports punches, increases hole accuracy, improves stripping and prevents scrap from rising into the assembly.

- **Clamp clearing relief**

Use this tool close to work holder clamps. The stripper and the die are relieved so the clamp can pass between the upper and the lower unit. No need to reposition the clamps, saves time, improves piece part quality.

- **Quick length adjustment**

The external quick length adjustment button on the side of the guide allows the punch length to be adjusted without disassembly. Guide will adjust punch point length by 0.008(0.20) per click.

- **Hardened and ground guide**

Reduces abrasive action of punching, diffuses heat effectively, resists galling, extends tool life, increases turret life and improves up time.

- **Interior and exterior spiral grease grooves**

Even and consistent tool lubrication increases tool life.

- **Tool Lubrication**

Interior vertical fluid grooves and fluid through holes provide even and efficient transfer of lubrication fluid to internal surfaces and to external guide surface area, increases lubrication and tool life.

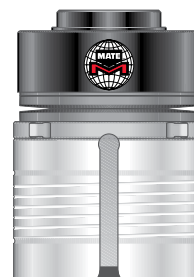
- **Additional 0.079(2.00) punch grind life**

Use insert style punches from Mate in combination with this specially designed stripper to gain additional grind life.

- **Slug Free® die design**

Clearing the slug every cycle eliminates slug pulling, extends tool life, improves piece part quality and reduces scrap.

## 4-1/2" E STATION



Ultra TEC® Fully Guided  
Clamp Clearing  
Guide Assembly



Punch Retainer



Slitting Insert



"DD" Stripper Plate



"D" Stripper Plate



"DD" Clamp Clearing  
Slug Free® Die



"D" Clamp Clearing  
Slug Free® Die

[Dimensions in Inches (mm)]



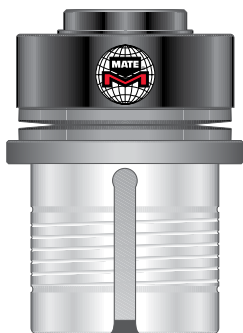
# ULTRA TEC® FULLY GUIDED CLAMP CLEARING SLITTING TOOL

## 3-1/2" D AND 4-1/2" E STATION

25

ULTRA TEC® FULLY GUIDED

### 3-1/2" D STATION



Ultra TEC® Fully Guided  
Clamp Clearing  
Guide Assembly



Punch Retainer



Slitting Insert



"DD" Stripper Plate



"D" Stripper Plate



"DD" Clamp Clearing  
Slug Free® Die

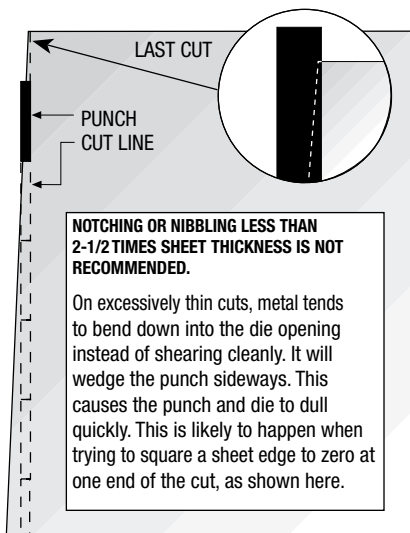
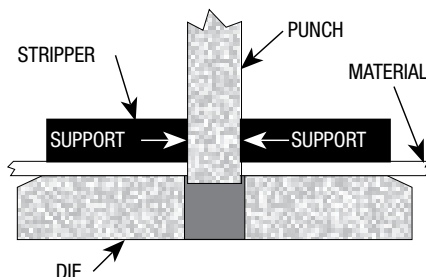


"D" Clamp Clearing  
Slug Free® Die

### ULTRA® CLAMP CLEARING SLITTING TOOL

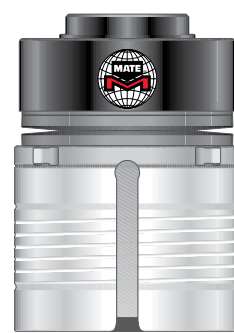
This tool is specially designed for slitting and parting applications. Separating piece parts, trimming sheet edges, and reducing sheet sizes often requires the use of a tool with long narrow dimensions. Rectangles with radius corners or ovals are recommended.

Slitting and parting applications require the tool to pierce material cleanly and accurately while overcoming various side load and twisting pressures. For example, parting a sheet will include an amount of overlap in each step where sheet resistance is absent. This causes the force of resistance to build on one side which can cause the hole to distort or saw tooth. The same is true when trimming the edge of a sheet.



The Ultra clamp clearing slitting tool is designed to overcome these side load and twisting pressures. The advantage comes from punch point guiding. By squarely and tightly controlling the punch point where it contacts the sheet, the punch can accurately pierce a hole, even when punching partial hits.

### 4-1/2" E STATION



Ultra TEC® Fully Guided  
Clamp Clearing  
Guide Assembly



Punch Retainer



Slitting Insert



"DD" Stripper Plate



"D" Stripper Plate



"DD" Clamp Clearing  
Slug Free® Die



"D" Clamp Clearing  
Slug Free® Die

See page 6 for Slug Free Light™ Dies

See page 94 for Add-Ons

[Dimensions in Inches (mm)]

## ULTRA TEC® FULLY GUIDED CLAMP CLEARING

## 3-1/2" D STATION



3.500(88.90) maximum  
punch diagonal/length

0.315(8.00) maximum  
punch width

3.560(90.40) maximum  
die diagonal/length

0.374(9.50) maximum  
die width



Ultra TEC® Fully Guided  
Guide Assembly\*  
**AGVT1Y**



\*Also Available  
(3-1/2" D Station Only)  
**AGVT3Y**  
External keyways at  
0°, 45° and 90°



Punch Retainer  
**AOLD00PR**



Slitting Insert  
Shaped **P4AQ\_A**



Clamp Clearing  
"DD" Stripper Plate  
Shaped **S6KW\_A**



Clamp Clearing  
"D" Stripper Plate  
Shaped **S6KT\_A**



Clamp Clearing  
"DD" Slug Free® Die  
Shaped **DOAW\_0**



Clamp Clearing  
"D" Slug Free® Die  
Shaped **DOAT\_0**



**AOLEH**

## 4-1/2" E STATION



4.500(114.30) maximum  
punch diagonal/length

0.315(8.00) maximum  
punch width

4.560(115.80) maximum  
die diagonal/length

0.374(9.50) maximum  
die width



Ultra TEC® Fully Guided  
Guide Assembly\*  
**AGVURZ**



Punch Retainer  
**AOLE00PR**



Slitting Insert  
Shaped **P4AR\_A**



Clamp Clearing  
"DD" Stripper Plate  
Shaped **S6KX\_A**



Clamp Clearing  
"D" Stripper Plate  
Shaped **S6KU\_A**



Clamp Clearing  
"DD" Slug Free® Die  
Shaped **DOAX\_0**



Clamp Clearing  
"D" Slug Free® Die  
Shaped **DOAU\_0**

[Dimensions in Inches (mm)]

The Mate Ultra TEC® precision tooling system for thick turret punch presses increases tool performance and flexibility, offers extended tool life, and allows interchangeability with existing tooling inventory.

Mate Ultra TEC® punch guide assemblies with M14 bolts provide many important benefits:

- Quick length adjustment – no shims or tooling required.
- Internal and external grooves for superior lubrication.
- Hardened and ground surfaces for maximum turret bore life.
- High performance stripping springs for extended service life.
- Full compatibility with existing M14 threaded punches.
- Conversion kit for compatibility with M12 threaded punches.

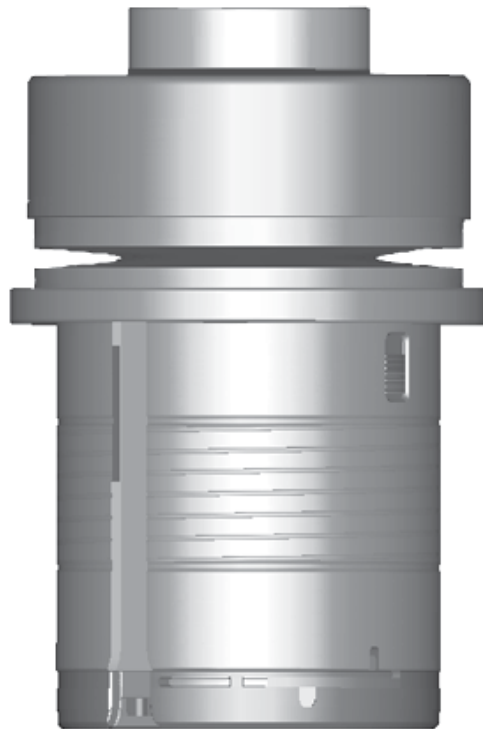
Mate Ultra TEC® guides with M14 bolts are available in two versions:

## ULTRA TEC®

- Quick-change stripper release mechanism allows stripper to be removed quickly and easily, without tools.
- Quick length adjustment mechanism on the side of the guide allows the punch length to be adjusted without disassembly.

## ULTRA TEC® FULLY GUIDED

- Fully guided stripper to guide the punch tip for improved piece part quality and extended punch life. Ideal for slitting and nibbling applications.
- Quick length adjustment mechanism on the side of the guide allows the punch length to be adjusted without disassembly.



Also available is an M14 punch driver conversion kit to convert existing Mate Ultra TEC® guides with M12 bolts to suit punches with an M14 thread.

| Tool Style / Station                                      | 2" C Station | 3-1/2" D Station | 4-1/2" E Station |
|---|--------------|------------------|------------------|
| Mate Ultra TEC® Guide with M14 bolt                       | MATE02396    | MATE00655        | MATE01809        |
| Mate Ultra TEC® Fully Guided Guide with M14 bolt          | MATE00657    | MATE00658        | MATE01813        |
| Mate Ultra TEC®/Ultra XT® M14 Punch Driver Conversion Kit | MATE00651    | MATE00652        | MATE00653        |

Mate's Ultra XT™ Precision Tooling System is a thick turret punching system which increases tool performance and flexibility, offers extended tool life and allows interchangeability with existing systems. Some features of the Ultra XT™ system include:

- Premium high speed tool steel punches
- Quick tool change
- Easy click length adjustment - no punch shims required
- Grooved guides for better lubrication
- Slug Free® die design
- 0.118(3.00) additional punch grind life.

## PUNCHES:

- Premium high speed tool steel for extended life between regrinds and maximum productivity.
- 1/4 degree back taper and near polished flanks to reduce friction, eliminate galling and extend punch life.
- External lubrication grooves to allow fluid flow.
- Available in multiple styles:
  - Ultra TEC® with lubrication grooves.
  - Ultra® QCT™ with lubrication grooves.
  - Ultra® Metric compatible with original style punches.
  - Inch Style (1-1/4" B station only).

**Option:** M4PM™ steel available in Ultra TEC® A and B station punches for superior performance and longevity. (See page 93 for details and additional information.)

## STRIPPERS:

- Fully compatible with Ultra TEC® tooling system.
- Relieved to allow 0.118(3.00) extra grind life.
- Quick-change mechanism to allow rapid tool change.

## SLUG FREE® DIES:

- Slug Free® die geometry eliminates slug pulling. See page 9.
- Highly wear resistant, chrome air hardened tool steel.
- Uniform clearance radii in die corners improve edge quality.
- Up to 0.125(3.20) grind life.

## CANISTER ASSEMBLIES:

- Quick length adjustment with positive engagement with the guide.
- Uniform spring pressure for reliable stripping.
- Available in multiple styles:
  - Ultra TEC® for use with Ultra TEC® and Ultra® QCT™ punches.
  - Ultra® Metric for original style punches.
  - Inch Style (1-1/4" B station only) for Inch style punches.

## GUIDES WITH EXTERNAL ORIENTATION SLOTS:

- Quick-change mechanism with no tools require.
- Tool remains assembled during tool length adjustment.
- Internal and external lubrication to reduce friction.
- Hardened and ground to reduce wear.
- Available in three styles:
  - Round – internal keyway for round punches only.
  - Shaped – one precision internal keyway, 0° and 90° external keyways.
  - Shaped – one precision internal keyway, 0° and 45° external keyways.



[Dimensions in Inches (mm)]

Mate's Ultra XT™ Precision Tooling System is a thick turret punching system which increases tool performance and flexibility, offers extended tool life and allows interchangeability with existing systems. Some features of the Ultra XT™ system include:

- Premium high speed tool steel punches.
- Quick tool change.
- Easy click length adjustment - no punch shims required.
- Grooved guides for better lubrication.
- Slug Free® die design.
- Compatible with machine tool lubrication systems.
- OEM compatible strippers in the 2" C, 3-1/2" D, 4-1/2" E stations.

## PUNCHES:

- Premium high speed tool steel for extended life between regrinds and maximum productivity.
- 1/4 degree back taper and near polished flanks to reduce friction and eliminate galling.
- Superior angularity, concentricity, and dimensional accuracy.
- Robust full-body design.
- Fully compatible with original style thick turret tooling.



## STRIPPERS:

- Fully OEM compatible.
- Close tolerance opening for superior piece part quality.
- Radiused face to ease installation and reduce sheet marking.

## SLUG FREE® DIES:

- Highly wear resistant, chrome air hardened tool steel to balance hardness and toughness.
- Slug Free® die geometry eliminates slug pulling. See page 14.
- Uniform clearance radii in die corners to improve edge quality.
- Precision orientation keyway.
- Up to 0.125(3.20) grind life.
- Superior roundness and flatness with exceptional die strength.

## PUNCH GUIDE ASSEMBLY:

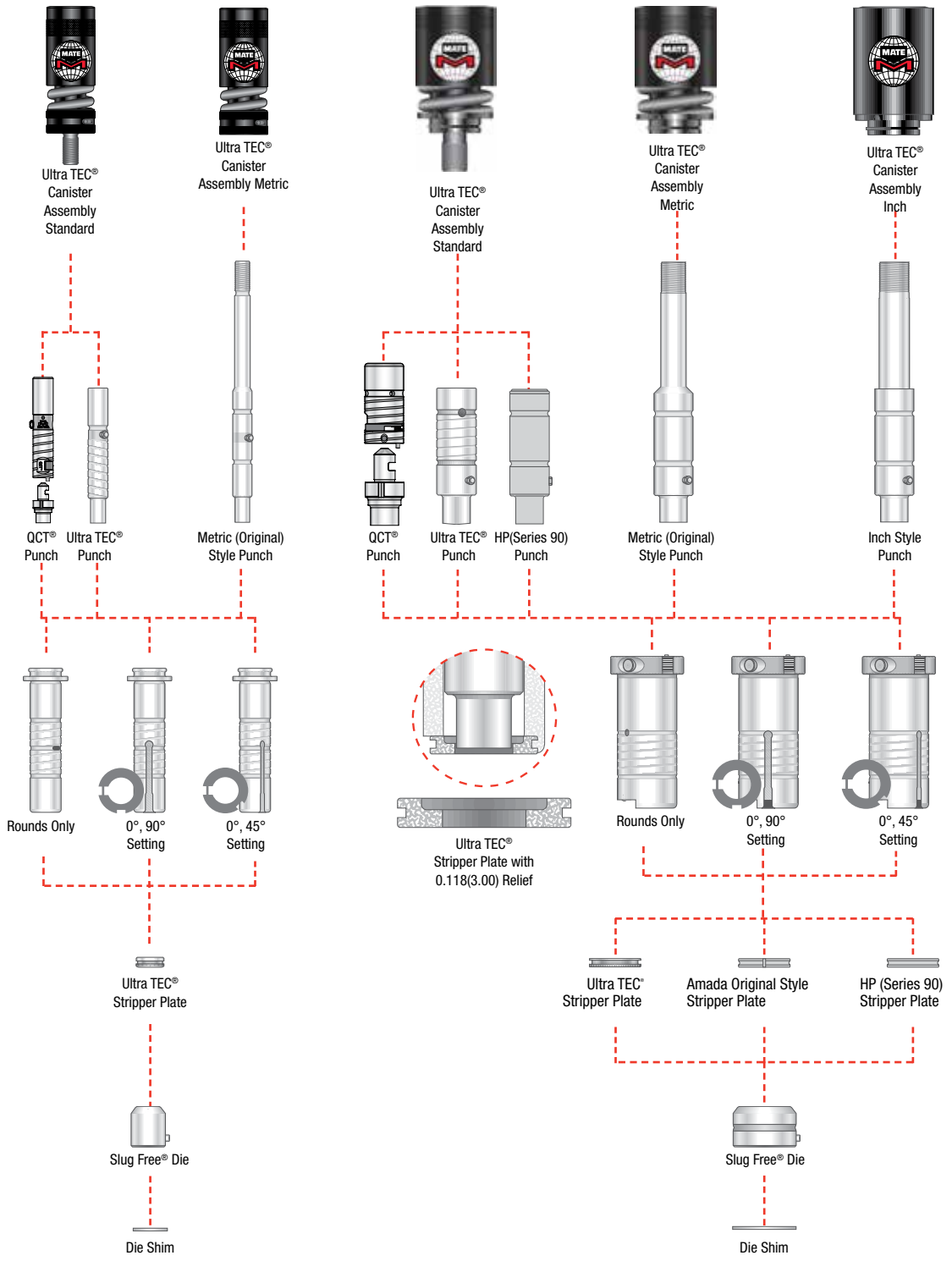
- Fully compatible with original style strippers.
- Quick length adjustment mechanism on the side of the guide allows the punch length to be adjusted without disassembly.
- Hardened and ground to stay round and true to size to greatly reduce turret bore wear.
- Internal and external lubrication grooves to reduce friction.
- High performance disc springs to optimize stripping force.

[Dimensions in Inches (mm)]

ULTRA XT™ SYSTEM OVERVIEW

1/2" A STATION

1-1/4" B STATION



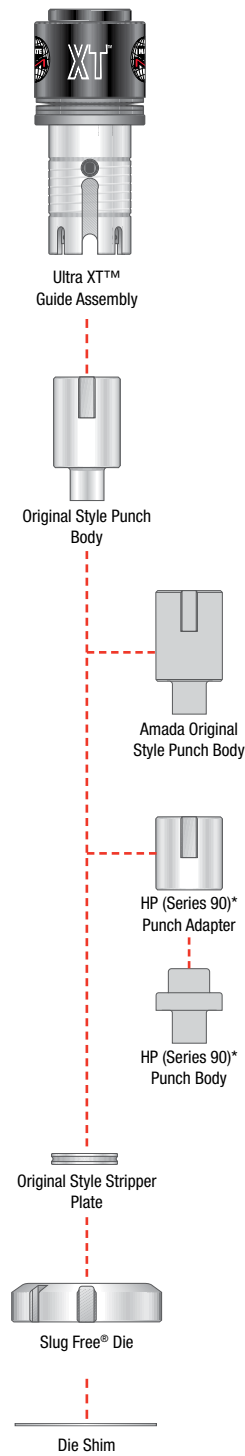
\*HP WLS and HP ABS are not compatible with Ultra XT guides. Use Ultra TEC® guides.

[Dimensions in Inches (mm)]

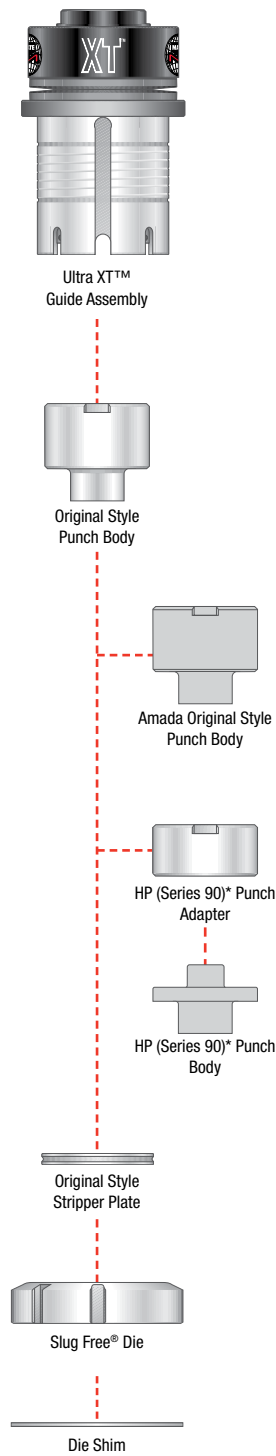




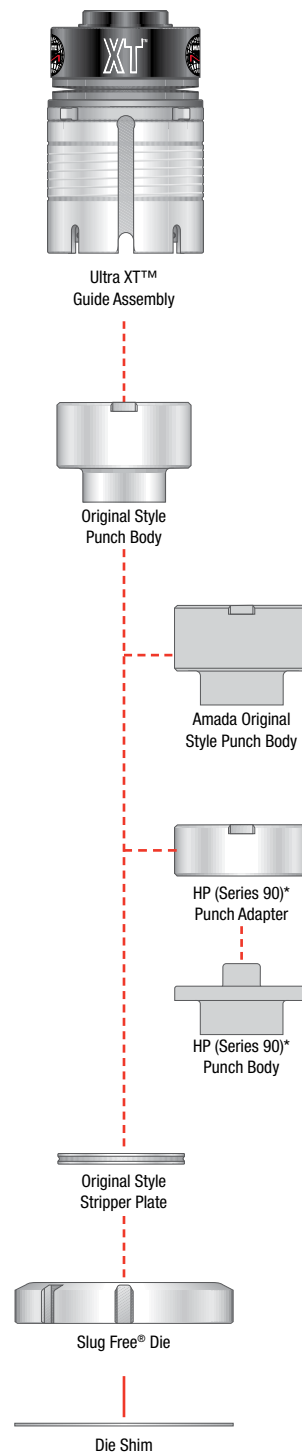
## 2" C STATION



## 3-1/2" D STATION

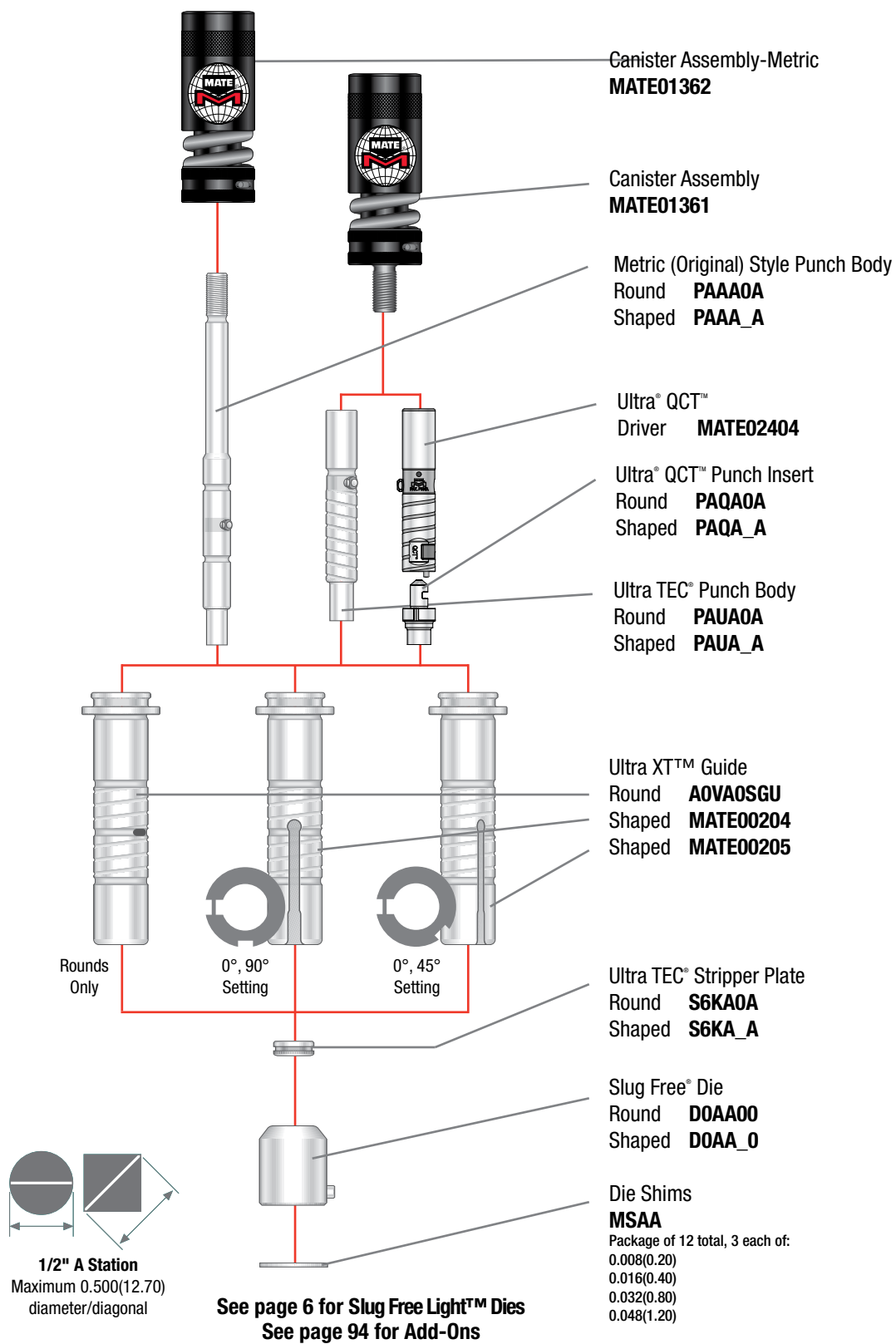


## 4-1/2" E STATION



[Dimensions in Inches (mm)]

**ULTRA XT™ 1/2" A STATION ASSEMBLY FOR  
ULTRA TEC® AND THICK TURRET STYLE PUNCHES**



**STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):**

|           |        |          |       |         |         |      |            |            |          |         |
|-----------|--------|----------|-------|---------|---------|------|------------|------------|----------|---------|
| rectangle | square | quad "D" | round | hexagon | octagon | oval | single "D" | double "D" | triangle | diamond |
| 1         | 3      | A05      | 0     | N       | P       | 2    | 4          | 5          | C08      | C07     |

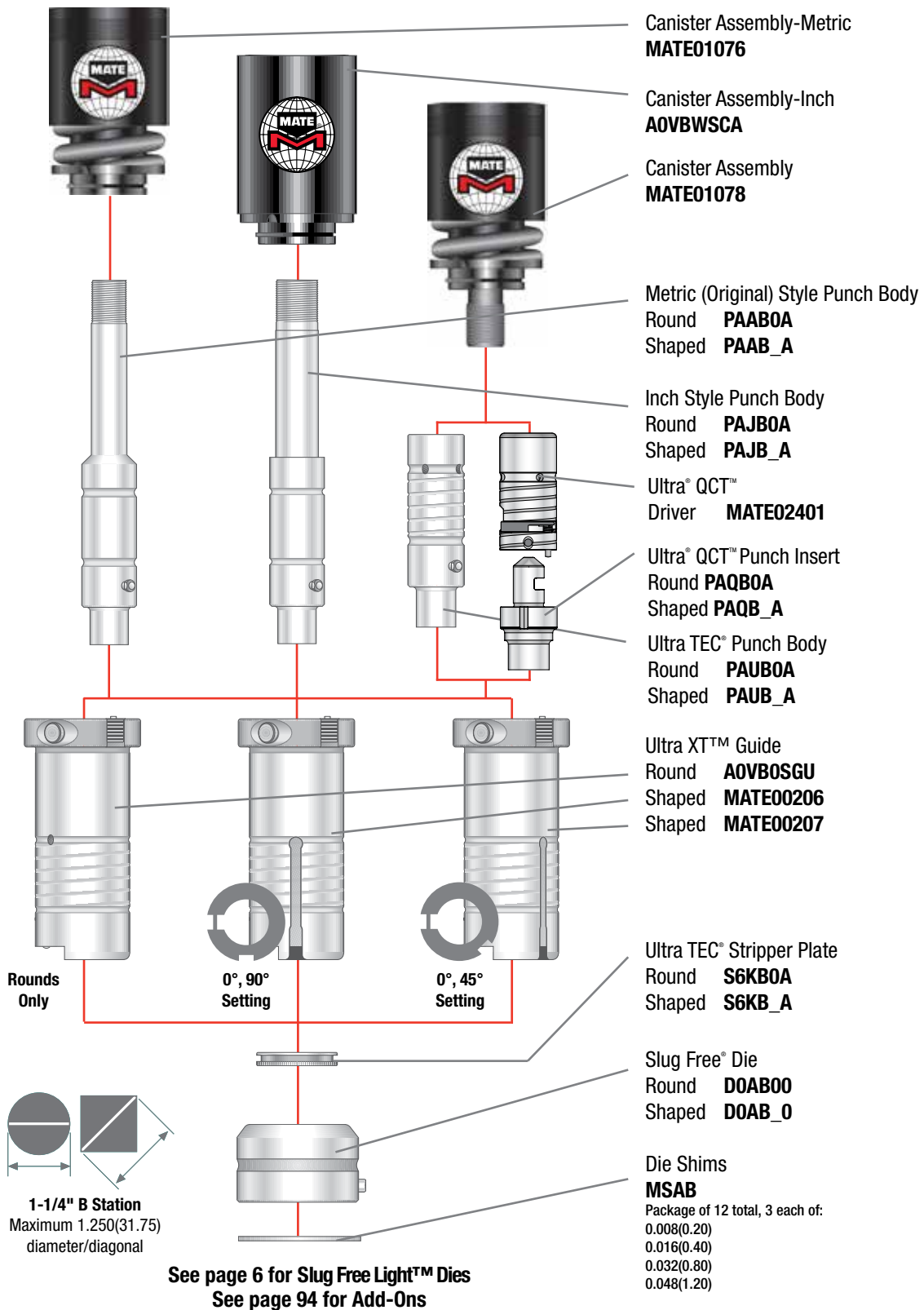
[Dimensions in Inches (mm)]



# ULTRA XT™ 1-1/4" B STATION ASSEMBLY FOR ULTRA TEC® AND THICK TURRET STYLE PUNCHES

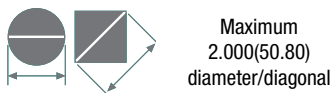
33

ULTRA XT™



[Dimensions in Inches (mm)]

2" C STATION



Maximum  
2.000(50.80)  
diameter/diagonal



Ultra XT™ Guide Assembly  
**MATE00209**



Original Style Punch Body  
Round **PAAC0A**  
Shaped **PAAC\_A**



Original Style Stripper Plate  
Round **S6AC0A**  
Shaped **S6AC\_A**

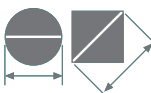


Slug Free® Die  
Round **DOAC00**  
Shaped **DOAC\_0**

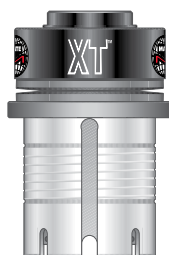
Die Shims  
**MSAC**

Package 3 each:  
0.016(0.40), 0.032(0.80), 0.048(1.20)

3-1/2" D STATION



Maximum  
3.500(88.90)  
diameter/diagonal



Ultra XT™ Guide Assembly  
**MATE00211**



Original Style Punch Body  
Round **PAAD0A**  
Shaped **PAAD\_A**



Original Style Stripper Plate  
Round **S6AD0A**  
Shaped **S6AD\_A**

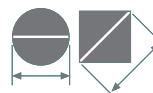


Slug Free® Die  
Round **DOAD00**  
Shaped **DOAD\_0**

Die Shims  
**MSAD**

Package 3 each:  
0.016(0.40), 0.032(0.80), 0.048(1.20)

4-1/2" E STATION



Maximum  
4.500(114.30)  
diameter/diagonal



Ultra XT™ Guide Assembly  
**MATE01814**



Original Style Punch Body  
Round **PAAE0A**  
Shaped **PAAE\_A**



Original Style Stripper Plate  
Round **S6AE0A**  
Shaped **S6AE\_A**



Slug Free® Die  
Round **DOAE00**  
Shaped **DOAE\_0**

Die Shims  
**MSAE**

Package 3 each:  
0.016(0.40), 0.032(0.80), 0.048(1.20)

6" F STATION ULTRA XT ASSEMBLY

Ultra XT™ Guide Assembly  
**MATE02070**

Original Style Punch Body  
Round **PAAF0A**  
Shaped **PAAF\_A**

Original Style Stripper Plate  
Round **S6AF0A**  
Shaped **S6AF\_A**

Slug Free® Die  
Round **DOAF00**  
Shaped **DOAF\_0**

Die Shims  
**MSAF**  
Package 3 each:  
0.016(0.40),  
0.032(0.80),  
0.048(1.20)

STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):



See page 6 for Slug Free Light™ Dies

See page 94 for Add-Ons

[Dimensions in Inches (mm)]

Mate's Original Style Thick Turret Tooling is fully OEM compatible tooling with several design enhancements. Premium High Speed Tool Steel is a standard feature in all Mate Thick Turret punches.

**PUNCHES:**

- Premium high speed tool steel - optimum edge wear resistance.
- 1/4 degree back taper and near polished flanks to reduce friction and eliminate galling.
- Exceptional dimensional accuracy and tool life.
- Minute corner radii to reduce chipping.
- Superior angularity and concentricity.

**STRIPPERS:**

- Fully OEM compatible.
- Close tolerance opening - superior piece part quality.
- Precision alignment slots - superior piece part quality.
- Hardened and ground - to reduce friction.
- Radiused face - to reduce sheet marking.

**SLUG FREE® DIES:**

- Highly wear resistant, chrome air hardened tool steel.
- Slug Free® die geometry eliminate slug pulling.
- Uniform clearance radii in die corners for improved piece part quality.
- Precision orientation with hardened pin.
- Up to 0.125(3.20) grind life.
- Improved die strength.
- Superior roundness and flatness.

**PUNCH HEAD:**

- Hexagonal design and 12.9 grade socket head cap screw for easier installation and adjustment.

**SPRING:**

- High performance spring shot peened prior to painting for extended service life.

**SPRING RETAINER:**

- Reversible design returns the punch point to "new" position by turning over retainer after 0.078(2.00) has been removed during regrinding.

[Dimensions in Inches (mm)]

Mate's Original Style Thick Turret Tooling is fully OEM compatible tooling with several design enhancements. Premium High Speed Tool Steel is a standard feature in all Mate Thick Turret punches.

#### **PUNCHES:**

- Premium high speed tool steel - optimum edge wear resistance.
- 1/4 degree back taper and near polished flanks to reduce friction and eliminate galling.
- Exceptional dimensional accuracy and tool life.
- Minute corner radii to reduce chipping.
- Superior angularity and concentricity.

#### **SLUG FREE® DIES:**

- Highly wear resistant, chrome air hardened tool steel.
- Slug Free® die geometry eliminates slug pulling.
- Uniform clearance radii in die corners for improved piece part quality.
- Precision orientation with external keyway.
- Up to 0.125(3.20) grind life.
- Improved die strength.
- Superior roundness and flatness.

#### **STRIPPER:**

- Fully OEM compatible.
- Close tolerance opening for superior piece part quality.
- Radiused face to ease installation and reduce sheet marking.

#### **PUNCH GUIDE ASSEMBLY:**

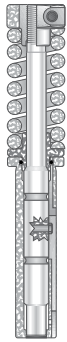
- Fully OEM compatible.
- Hardened and ground to reduce turret bore wear.
- Internal and external lubrication grooves to reduce friction.
- High performance disc springs to optimize stripping force throughout the service life of the machine.



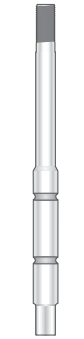
*[Dimensions in Inches (mm)]*



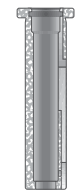
## 1/2" A STATION



Punch Assembly



Punch Body



Punch Guide

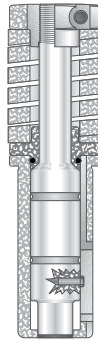


Slug Free® Die

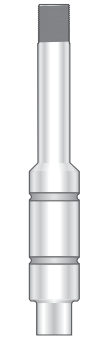


Die Shim

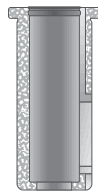
## 1-1/4" B STATION



Punch Assembly



Punch Body



Punch Guide

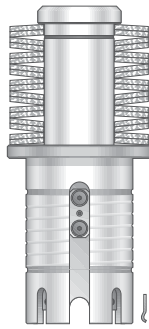


Slug Free® Die



Die Shim

## 2" C STATION



Punch Guide Assembly



Punch Body



Punch Retainer



Slitting Insert



Stripper Plate

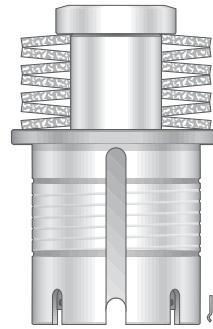


Slug Free® Die

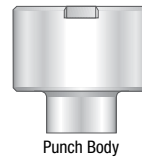


Die Shim

## 3-1/2" D STATION



Punch Guide Assembly



Punch Body



Punch Retainer



Slitting Insert



Stripper Plate

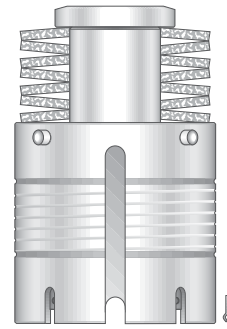


Slug Free® Die

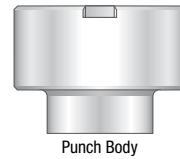


Die Shim

## 4-1/2" E STATION



Punch Guide Assembly



Punch Body



Punch Retainer



Slitting Insert



Stripper Plate



Slug Free® Die

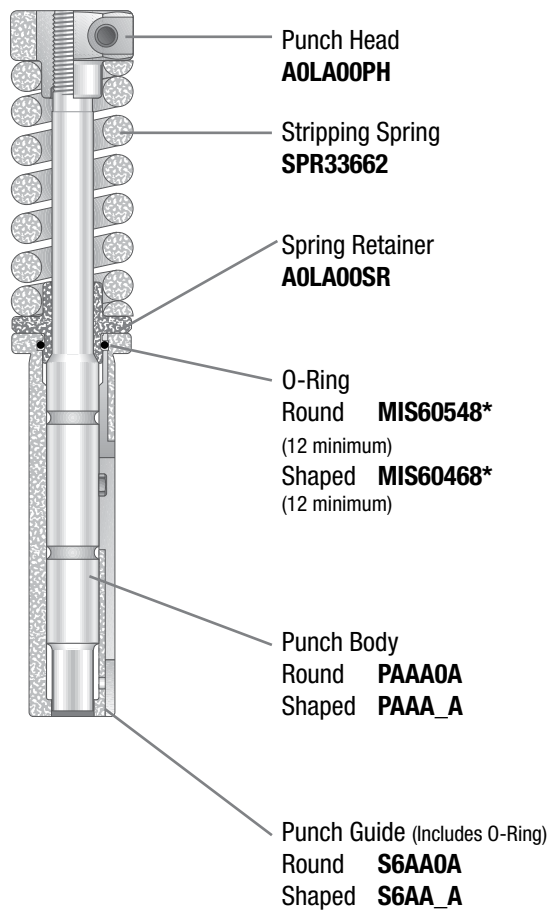


Die Shim

### FEATURES INCLUDE:

- OEM compatible
- Hardened and ground guides
- Premium high speed tool steel punches
- Slug Free® die

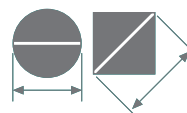
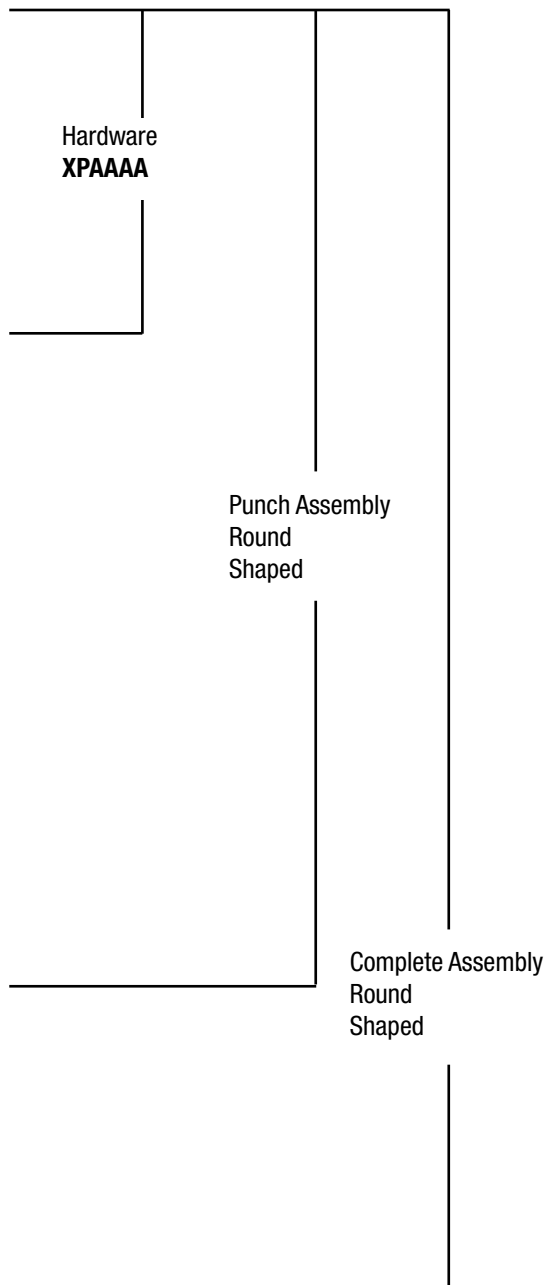
[Dimensions in Inches (mm)]



Slug Free® Die  
Round **D0AA00**  
Shaped **D0AA\_0**



Die Shims  
**MSAA**  
Package of 12 total, 3 each of:  
0.008(0.20)  
0.016(0.40)  
0.032(0.80)  
0.048(1.20)

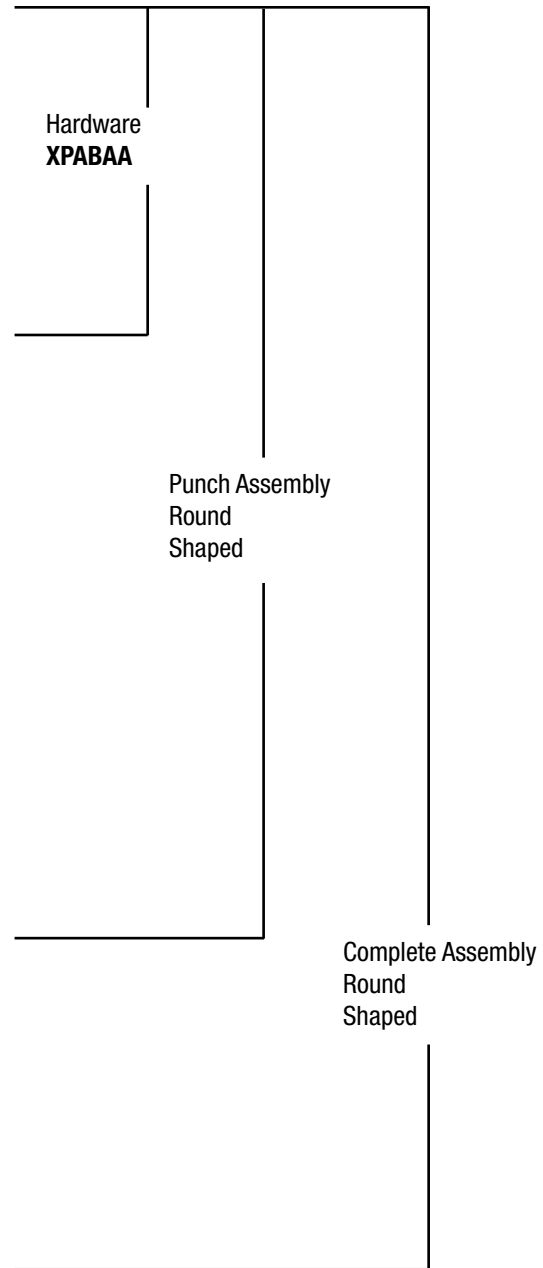
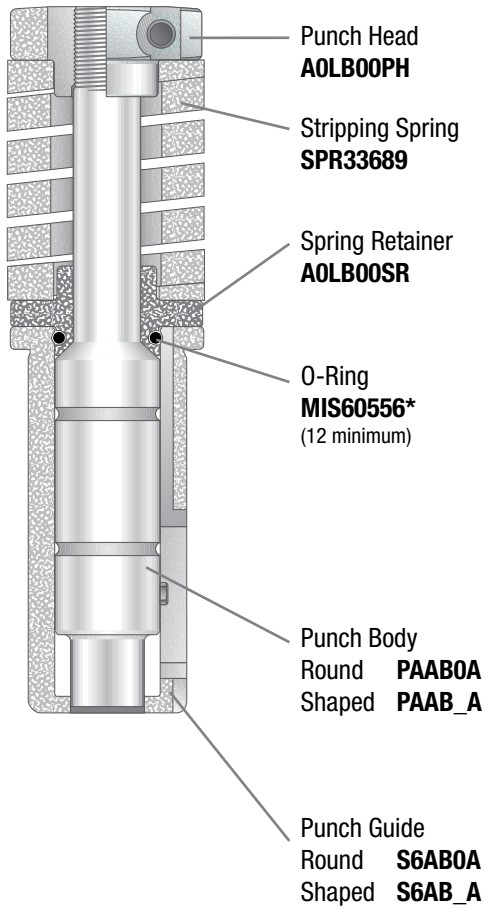


**1/2" A Station**  
Maximum 0.500(12.70)  
diameter/diagonal

\* Items sold separately  
beyond minimum quantity

See page 94 for Add-Ons

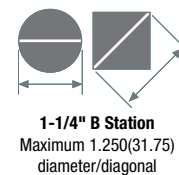
[Dimensions in Inches (mm)]



Slug Free® Die  
Round **DOAB00**  
Shaped **DOAB\_0**



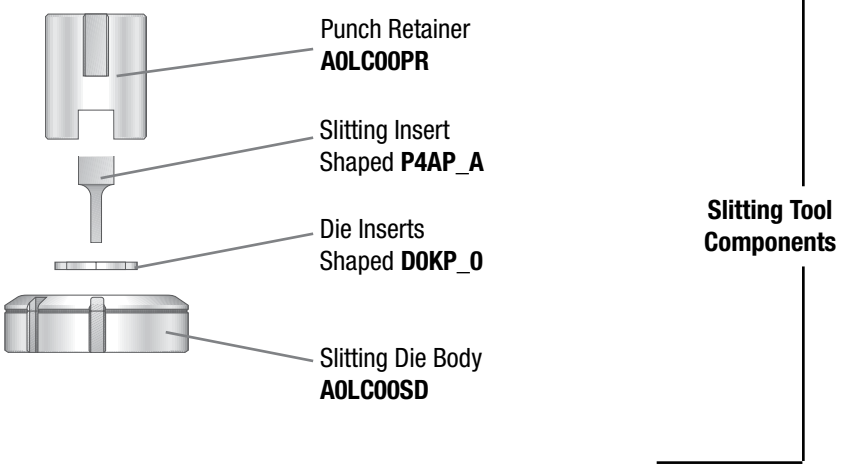
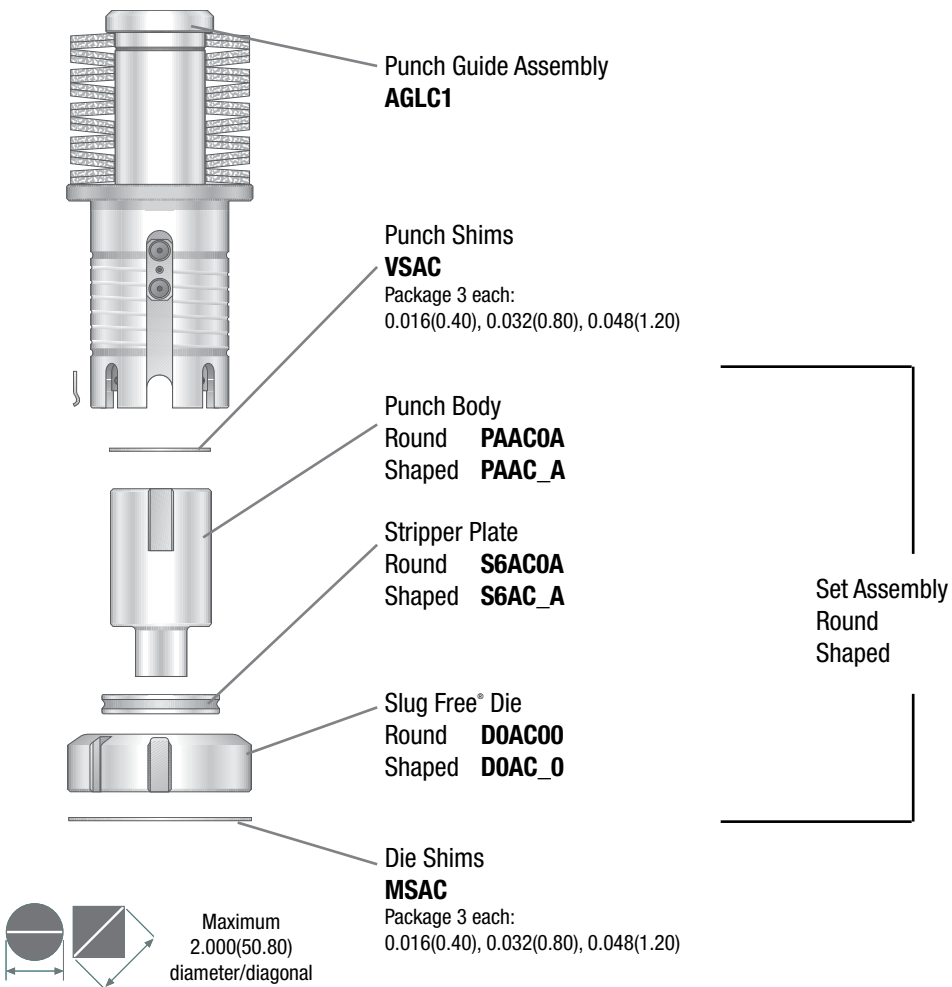
Die Shims  
**MSAB**  
Package of 12 total, 3 each of:  
0.008(0.20)  
0.016(0.40)  
0.032(0.80)  
0.048(1.20)



See page 94 for Add-Ons

\* Items sold separately beyond minimum quantity

2" C STATION ASSEMBLY



D/L = Diagonal/Length  
R C = Radius Corners

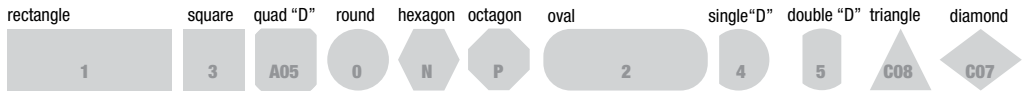
**Slitting Insert with  
Slug Free® Die**  
2.000(50.80) max. D/L  
0.709(18.00) max. width

**Slug Free® Die**  
2.059(52.30) max. D/L  
0.768(19.50) max. width

**Slitting Insert with  
Die Inserts**  
2.000(50.80) max. D/L  
0.268(6.80) max. width

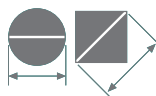
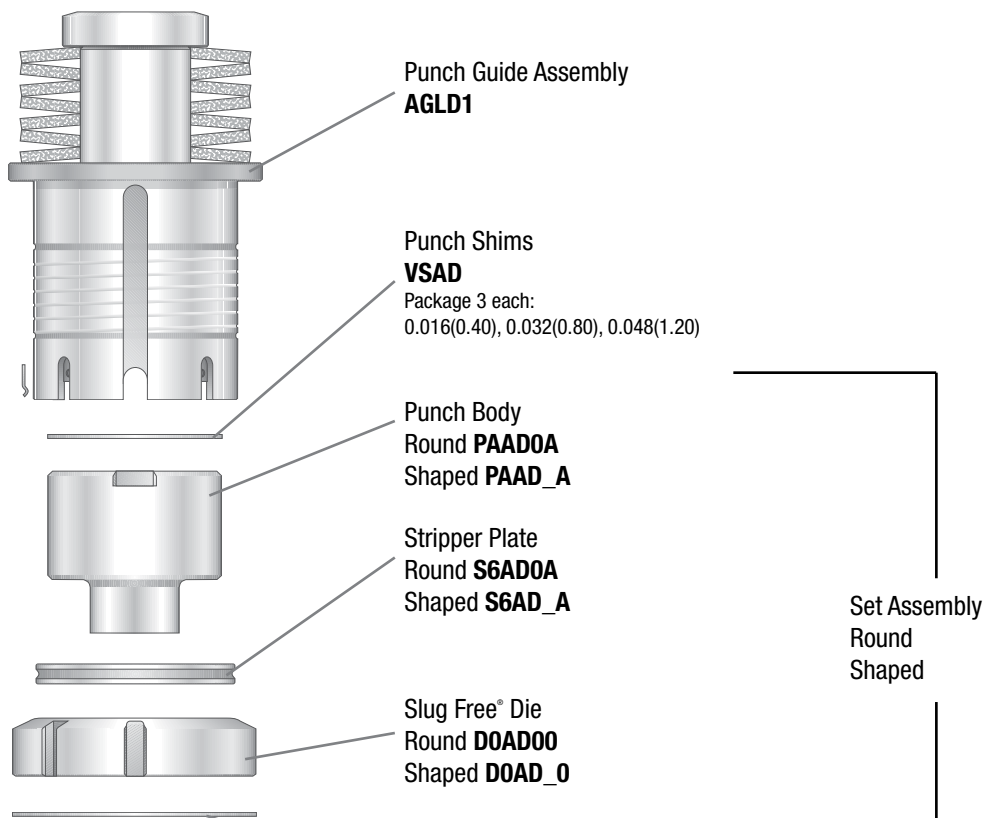
**Die Inserts, Rectangles  
and Ovals**  
2.028(51.50) max. D/L  
0.295(7.50) max. width

STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):



[Dimensions in Inches (mm)]

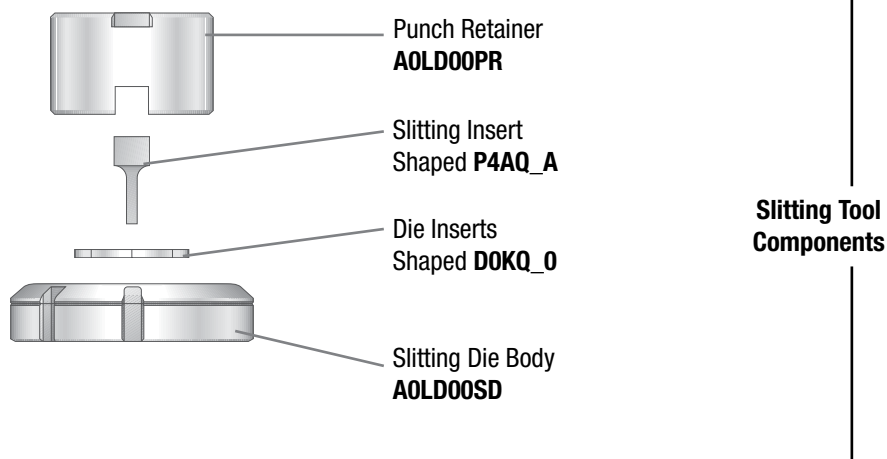




Maximum  
3.500(88.90)  
diameter/diagonal



D/L = Diagonal/Length  
R C = Radius Corners



**Slitting Insert with  
Slug Free® Die**  
3.500(88.90) max. D/L  
0.709(18.00) max. width

**Slug Free® Die**  
3.559(90.40) max. D/L  
0.768(19.50) max. width

**Slitting Insert with Die Inserts**  
3.500(88.90) max. D/L  
0.315(8.00) max. width

**Die Inserts R C ≤ 0.125(3.18)**  
3.384(85.95) max. length  
0.335(8.50) max. width  
**OR**  
3.539(89.90) max. length  
0.175(4.45) max. width

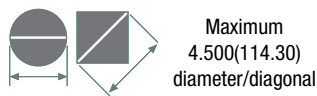
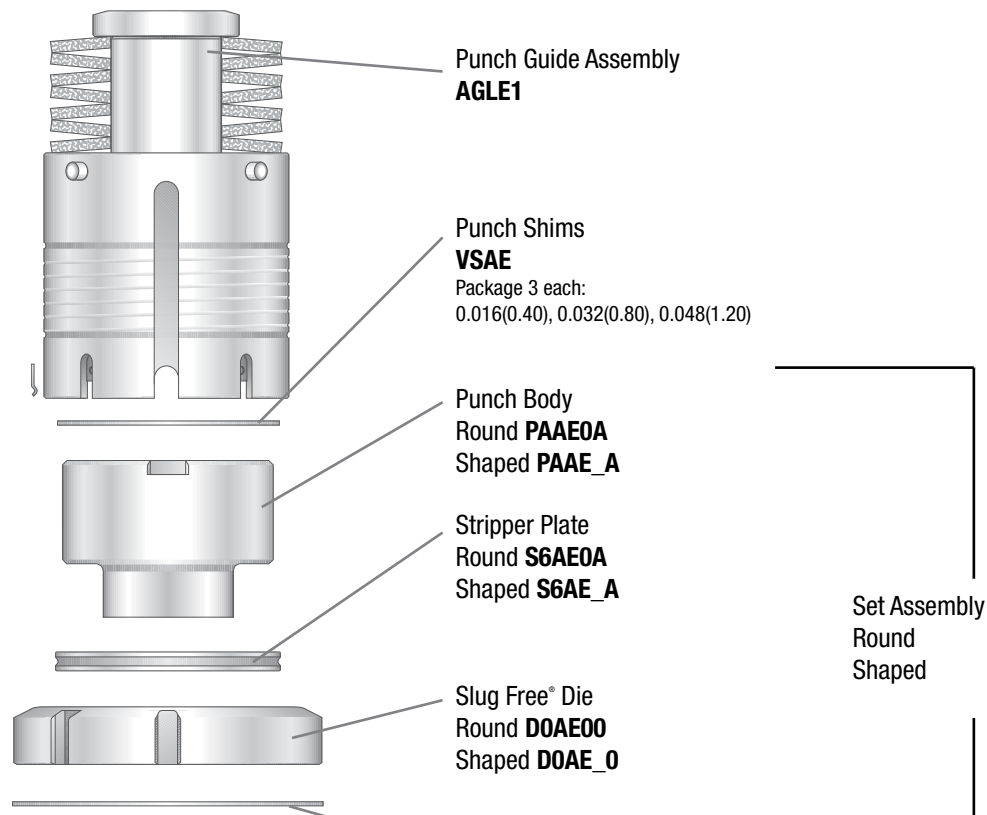
**Die Inserts R C > 0.125(3.18)  
and Ovals**  
3.520(89.40) max. length  
0.335(8.50) max. width

See page 94 for Add-Ons



[Dimensions in Inches (mm)]

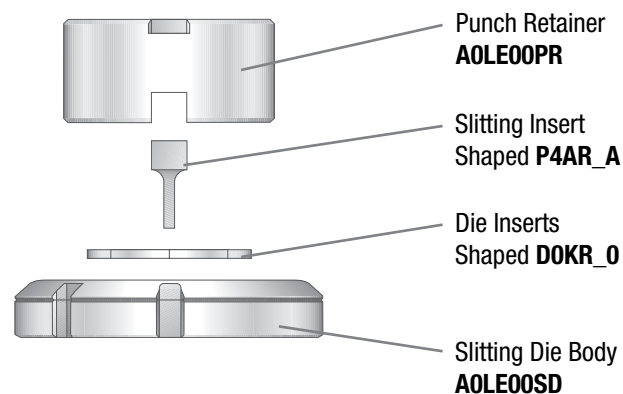
## 4-1/2" E STATION ASSEMBLY



Die Shims  
**MSAE**  
Package 3 each:  
0.016(0.40), 0.032(0.80), 0.048(1.20)



D/L = Diagonal/Length  
R C = Radius Corners

Slitting Tool  
Components

**Slitting Insert with  
Slug Free® Die**  
4.500(114.30) max. D/L  
0.709(18.00) max. width

**Slug Free® Die**  
4.559(115.80) max. D/L  
0.768(19.50) max. width

**Slitting Insert with Die Inserts**

4.500(114.30) max. D/L  
0.315(8.00) max. width

**Die Inserts R C ≤ .125(3.18)**

4.411(112.05) max. length  
0.335(8.50) Max. width

**OR**

4.539(115.30) max. length  
0.236(6.00) max. width

**Die Inserts R C > .125(3.18)  
and Ovals**

4.539(115.30) max. length  
0.335(8.50) max. width

**STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):**

[Dimensions in Inches (mm)]



**Punch Guide Assembly:**

This punch guide assembly is designed to fit all thick turret machines with a 6" F station. The guide assembly incorporates many performance features including:

- Hardened guide body.
- High performance disc springs.
- High tensile draw bolt.
- Precision internal punch key.
- Internal and external lubrication grooves.
- Spring steel stripper clips.
- Fully OEM compatible.

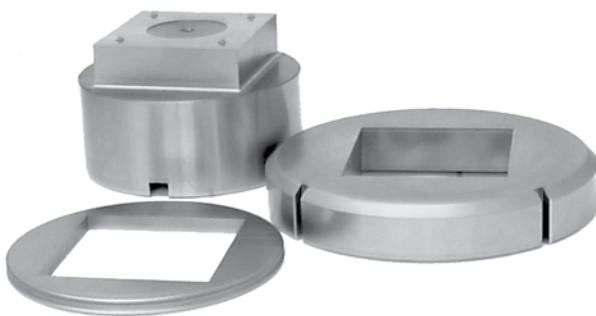
**Punches, Strippers, and Dies**

Mate offers a comprehensive range of punches, strippers and dies to suit the thick turret 6" F Station.

- High Speed Steel Punches.
- Toughened Strippers.
- Shock Steel Dies.

**Special Assembly Applications**

Available on request. Contact your Mate applications specialist.

**PUNCH GUIDE ASSEMBLY**  
**AGLF1****PUNCH**

Round **PAAF0A**

Shaped **PAAF\_A**

**STRIPPER**

Round **S6AF0A**

Shaped **S6AF\_A**

**DIE**

Round **D0KF00**

Shaped **D0KF\_0**

[Dimensions in Inches (mm)]

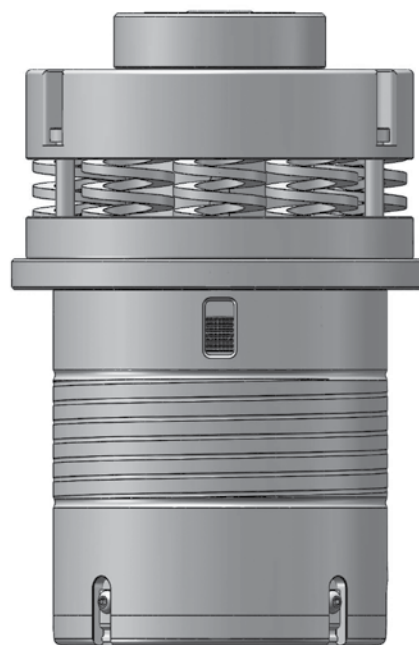
# THICK TURRET PUNCH GUIDE ASSEMBLIES WITH ULTRA LIGHT™ SPRING PACKS

Mate Ultra Light™ spring packs provide precise control of the stripping pressure when using any thick turret guide assembly manufactured by Mate. Benefits include:

- Reduced spring pressure to eliminate unwanted sheet marking. Designed for thin or decorative materials.
- Ideal for high polish, textured, pre-painted or reflective metals where finish appearance is critical.
- Quieter punching in all applications. Noise levels reduced by as much as 10 decibels.
- Maximum control over total spring pressure. Combine two sets of springs for nine pressure variations. See table.

Mate punch guide assemblies complete with Mate Ultra Light™ spring packs are now available for popular thick turret tooling styles including:

- Mate Ultra TEC®
- Mate Ultra TEC® Fully Guided
- Mate Ultra XT™
- Original Style Thick Turret



Note: Your existing Mate thick turret guides can be retrofitted with Mate Ultra Light™ spring packs.

| TOOL STYLE  | STATION  | PART NUMBER |
|---|----------|-------------|
| Mate Ultra TEC®   | 2" C     | MATE02395   |
|   | 3-1/2" D | MATE00488   |
|   | 4-1/2" E | MATE01807   |
| Mate Ultra TEC® Fully Guided                            | 2" C     | MATE00490   |
|   | 3-1/2" D | MATE00491   |
|   | 4-1/2" E | MATE01811   |
| Mate Ultra XT™  | 2" C     | MATE00496   |
|   | 3-1/2" D | MATE00497   |
|   | 4-1/2" E | MATE01815   |
|   | 6" F     | MATE02072   |
| Original Style Thick Turret                             | 2" C     | MATE00493   |
|   | 3-1/2" D | MATE00494   |
|   | 4-1/2" E | MATE00495   |
|   | 6" F     | MATE02328   |
| Additional springs for heavier application. (pack of 9) | 2" C     | MATE00280   |
|   | 3-1/2" D | MATE00281   |
|   | 4-1/2" E | MATE00281   |

Mate Ultra Light™ spring packs are supplied with 9 blue springs. The spring pressure can be altered by removing and/or replacing the springs. Additional red and gold springs are available.

Use the table below to select the spring combination to achieve the desired stripping pressure. The spring pressure is stated as the percentage achieved in the Ultra Light™ guide as compared to an Ultra TEC® disc spring stack.

| 2" C Station    |     | 3-1/2" D Station<br>4-1/2" E Station |     |
|-----------------|-----|--------------------------------------|-----|
| 3 blue          | 4%  | 3 blue                               | 5%  |
| 6 blue          | 7%  | 6 blue                               | 10% |
| 9 blue          | 10% | 3 red                                | 11% |
| 3 gold          | 12% | 9 blue                               | 15% |
| 3 blue + 3 gold | 15% | 3 blue + 3 red                       | 16% |
| 6 blue + 3 gold | 19% | 6 blue + 3 red                       | 21% |
| 6 gold          | 25% | 6 red                                | 22% |
| 3 blue + 6 gold | 27% | 3 blue + 6 red                       | 27% |
| 9 gold          | 36% | 9 red                                | 33% |

[Dimensions in Inches (mm)]

Mate's new AMX™ Thick Turret ABS Tooling offers the superior replacement alternative fabricators have been waiting for! AMX Tooling provides 100% worry free compatibility with AMADA® ABS assemblies and holders. PLUS, you have the flexibility of using AMX punches with Mate's Ultra TEC® Tooling System. Mate incorporated advanced metallurgy and lubrication delivery systems to prevent galling, slivering, and slug pulling. As with all Mate products, AMX is backed by Best-In-Class service and our 100% Customer Satisfaction Guarantee.

#### **AMX™ PUNCHES**

- 100% worry free compatibility with Amada assemblies.
- Holder compatible with Mate Ultra TEC® and Ultra TEC® Fully Guided systems.
- M2 High Speed Steel - OEM equivalent. Superior to other after-market replacements, M2 lasts longer between regrinds.
- Precision gun drilled ABS channels on A and B-station punches.
- Standard external spiral lubrication grooves on A & B-station punches ensures uniform fluid flow for friction free punch-to-guide operation.
- 1/4 degree total back taper reduces galling.
- Hardened pin for precise orientation of punches for improved piece part quality.
- Maxima™ coating and Nitride treatment available for special application needs.

#### **AMX™ A AND B-STATION STRIPPER GUIDES**

- Available for A and B-station punches.
- Stripper opening incorporates blips for ABS compatibility.
- Fully hardened and ground for maximum precision and long life.
- Two styles:
  - Rounds, with internal keyway.
  - Shapes, with multiple precision keyways.
- Stripper relieved to allow 0.118(3,00) extra grind life.
- Rounded edges to minimize sheet marking.

#### **AMX™ C, D, AND E STRIPPERS**

- Fully compatible with AMADA ABS systems.
- Relieved to allow 0.078(2,00) extra grind life.
- Rounded edges to minimize sheet marking.
- Blips around stripper opening for ABS functionality.



[Dimensions in Inches (mm)]

**A-STATION PUNCH**

ROUND                    PMXA0A  
SHAPE                    PMXA\_A

**A-STATION STRIPPER GUIDE**

ROUND                    SMXA0A  
SHAPE                    SMXA\_A

**B-STATION PUNCH**

ROUND                    PMXB0A  
SHAPE                    PMXB\_A

**B-STATION STRIPPER GUIDE**

ROUND                    SMXB0A  
SHAPE                    SMXB\_A

**C-E-STATION PUNCHES**

ROUND                    PMXC0A  
SHAPE                    PMXC\_A  
ROUND                    PMXD0A  
SHAPE                    PMXD\_A  
ROUND                    PMXE0A  
SHAPE                    PMXE\_A

**C-E-STATION STRIPPERS**

ROUND                    SMXC0A  
SHAPE                    SMXC\_A  
ROUND                    SMXD0A  
SHAPE                    SMXD\_A  
ROUND                    SMXE0A  
SHAPE                    SMXE\_A

**PUNCH HEAD ASSEMBLIES**

A-STATION                XPAAMX  
B-STATION                XPABMX

**AMX SEAL KIT\***

A-STATION                MATE01880  
B-STATION                MATE01883

**D-E STATION SLITTING SYSTEMS**

D-STATION AMX Punch Insert Retainer Assembly  
E-STATION AMX Punch Insert Retainer Assembly  
D-STATION Slitting Insert with M4 Material  
E-STATION Slitting Insert with M4 Material



A & B-station punches

A & B-station stripper guides



C-station stripper



D-station stripper



E-station stripper

**Add Ons for Rounds and Shapes:**

Maxima™ Coating or Nitride Treatment for Punches:

A-Station:  
B-Station:  
C-Station:  
D-Station:  
E-Station:

Narrow Width:

Round point diameter  
0.020(0.51) to 0.061(1.55):

Round point diameter  
0.062 (1.55) to 0.092(2.34):

Shape point width  
is less than 0.079(2.00):

Non-Standard Angle Setting:  
Punches:

MATE01988  
MATE01990  
P4AQ\_A  
P4AR\_A

**STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):**

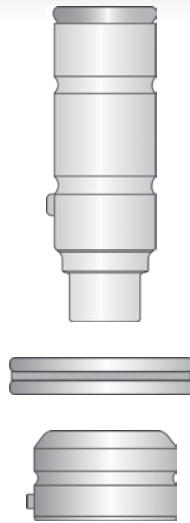


[Dimensions in Inches (mm)]

- DuraSteel™ with superior hardness and toughness for extended interval between regrinds.
- Hardened pin for precise orientation of punches for improved piece part quality.

- Smooth rounded edges to eliminate sheet marking and improve piece part quality.

- Slug Free® die geometry eliminates slug pulling to improve piece part quality and increase tool life.



- 1/4 degree back taper and near polished punch flanks to reduce friction, eliminate galling, and maximize punch life.
- Maxima™ coating available for extreme applications.

- Compatible with existing HP (Series 90) tooling inventory for maximum flexibility.

- Highly wear-resistant tool steel provides optimum balance between hardness and toughness, for extended life.

### MATE DURASTEEL™ HIGH PERFORMANCE TOOL STEEL

Mate DuraSteel™ is an air hardening tool steel designed specifically for use in high performance tooling systems.

A combination of the chemical composition of Mate DuraSteel and the closely controlled manufacturing process results in an upgrade to conventional High Chrome D2 tool steel. It offers better wear resistance, greater toughness, better compressive strength, and higher attainable hardness.

Mate DuraSteel is a high quality tool steel which has many advantages when compared to alternative tool steels commonly available. These advantages include:

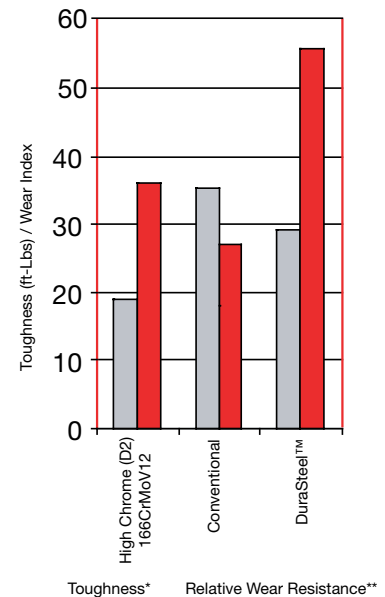
**Superior Wear Resistance** – Mate DuraSteel offers superior resistance to adhesive- and abrasive-wear to maximize the interval between regrinds.

- Increased Vanadium carbides – harder wearing than chromium carbides for greater resistance to abrasive-wear.
- Increased Tungsten carbides – harder wearing and offer better red hardness; increased resistance to high temperatures which may anneal or damage the material.
- Higher hardness – increased alloy content results in higher effective hardness for better wear resistance.

**Increased Toughness** – the chemical composition and heat treatment processes used with Mate DuraSteel make it tougher than conventional tool steels in impact strength tests.

- The inclusion of tungsten and vanadium allows the carbon content to be reduced, which increases the toughness.

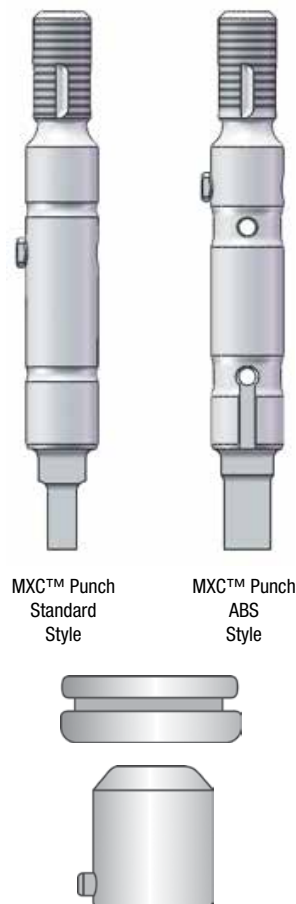
**Better Value** – Customer trials have shown that tools manufactured in Mate DuraSteel last 100% longer between regrinds than tools manufactured using conventional tool steels. By increasing the interval between regrinds, the tooling lasts longer and punches many more holes before needing to be replaced.



| DuraSteel™ Chemical Composition |       |
|---------------------------------|-------|
| Carbon                          | 1.10% |
| Chromium                        | 7.50% |
| Vanadium                        | 2.40% |
| Tungsten                        | 1.15% |
| Molybdenum                      | 1.60% |

MXC™

| MXC™ Punch - Standard   |        |  |
|---|--------|--|
| Round   | PXCA0A |  |
| Shape   | PXCA_A |  |
| Maxima™ Coating   |        |  |
| MXC™ Punch - ABS Style*   |        |  |
| Round   | PLCA0A |  |
| Shape   | PLCA_A |  |
| Maxima™ Coating   |        |  |
| MXC™ Stripper   |        |  |
| Round   | SXCA0A |  |
| Shape   | SXCA_A |  |
| Slug Free® Die  |        |  |
| Round   | DOAA00 |  |
| Shape   | DOAA_0 |  |
| Slug Free Light™ Die Option   |        |  |
| Round   |        |  |
| Shape   |        |  |
| Die Shim<br>Package of 12 total, 3 each of:<br>0.008(0.20)<br>0.016(0.40)<br>0.032(0.80)<br>0.048(1.20) | MSAA   |  |



**PUNCH**

- DuraSteel™ with superior hardness and toughness for extended interval between regrinds.
- Hardened double-D key for precise orientation of punches for improved piece part quality.
- 1/4 degree back taper and near polished punch flanks to reduce friction, eliminate galling, and maximize punch life.
- Maxima™ coating available to reduce friction in extreme applications. Less friction means less heat build up, less galling and longer tool life.

**Option:** M4PM™ steel available for superior performance and longevity. (See page 89 for details and additional information.)

**STRIPPER**

- Smooth rounded edges to eliminate sheet marking and improve piece part quality.
- Compatible with existing conventional tooling inventory for maximum flexibility.

**SLUG FREE® DIE**

- Slug Free die geometry eliminates slug pulling to improve piece part quality and increase tool life.
- Highly wear-resistant tool steel provides optimum balance between hardness and toughness, for extended life.

Mate's MXC™ Tooling System is a thick turret punching system which increases tool performance and flexibility, offers extended tool life and allows interchangeability with existing systems. Some features of the MXC system include:

- DuraSteel™ punches
- 100% Compatible with: HP™, HP™ WLS®, HP™ ABS
- Compatible with: Ultra TEC®, Ultra XT™
- Slug Free® die design

\*ABS Style also works in WLS environment

Mate MXC™ A and B-station tooling is produced under license from Wilson Tool International, Inc.

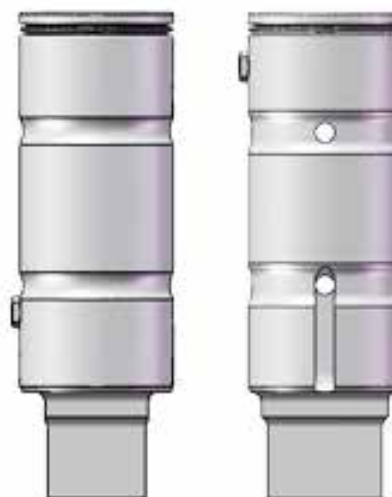
See page 53 for Add-Ons and Accessories

[Dimensions in Inches (mm)]





| MXC™ Punch - Standard   | Part Number | Price |
|---|-------------|-------|
| Round   | PXCB0A      |       |
| Shape   | PXCB_A      |       |
| Maxima™ Coating   |             |       |
| Anti-Rotation Pin   | MATE00752   |       |
| Retaining Ring  | RRI00010    |       |
| <b>MXC™ Punch - ABS Style</b>   |             |       |
| Round***  | PLCB0A      |       |
| Shape***  | PLCB_A      |       |
| Maxima™ Coating   |             |       |
| Anti-Rotation Pin   | MATE00752   |       |
| Retaining Ring  | RRI00010    |       |
| Felt Pad**  | FLT00001    |       |
| <b>MXC™ Stripper</b>  |             |       |
| Round   | SXCB0A      |       |
| Shape   | SXCB_A      |       |
| Retaining Ring*   | MATE00754   |       |
| <b>Slug Free® Die</b>   |             |       |
| Round   | D0AB00      |       |
| Shape   | D0AB_0      |       |
| <b>Slug Free Light™ Die Option</b>  |             |       |
| Round   |             |       |
| Shape   |             |       |
| Die Shim<br>Package of 12 total, 3 each of:<br>0.008(0.20)<br>0.016(0.40)<br>0.032(0.80)<br>0.048(1.20) | MSAB        |       |



MXC™ Punch  
Standard Style

MXC™ Punch  
ABS Style



\* Stripper retaining ring not included with stripper

\*\* Add felt pad (not included with punch) to ABS style punch to work in WLS® environment

\*\*\* MXC™ ABS B-station punches are compatible with Wilson Fully Indexable R series 3 station MT for Finn-Power

**Option:** M4PM™ steel available for superior performance and longevity. (See page 93 for details and additional information.)

Mate MXC™ A and B-station tooling is produced under license from Wilson Tool International, Inc.

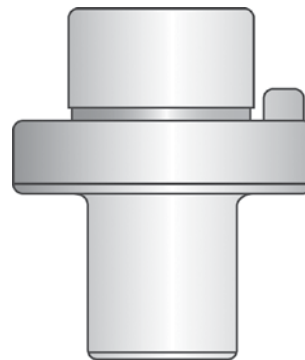
See page 53 for Add-Ons and Accessories

## STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):



[Dimensions in Inches (mm)]

| MXC™ Punch - Standard   | Part Number | Price |
|---|-------------|-------|
| Round   | PXCC0A      |       |
| Shape   | PXCC_A      |       |
| Maxima™ Coating   |             |       |
| Ultra TEC® Adapter  | A0VCWSPA    |       |
| <b>MXC™ Stripper</b>  |             |       |
| Round   | SXCC0A      |       |
| Shape   | SXCC_A      |       |
| <b>Slug Free® Die</b>   |             |       |
| Round   | DOAC00      |       |
| Shape   | DOAC_0      |       |
| <b>Slug Free Light™ Die Option</b>  |             |       |
| Round   |             |       |
| Shape   |             |       |
| Die Shim<br>Package of 9 total, 3 each of:<br>0.016(0.40)<br>0.032(0.80)<br>0.048(1.20) | MSAC        |       |



### PUNCH

- DuraSteel™ with superior hardness and toughness for extended interval between regrinds.
- Hardened double-D key for precise orientation of punches for improved piece part quality.
- 1/4 degree back taper and near polished punch flanks to reduce friction, eliminate galling, and maximize punch life.
- Maxima™ coating available to reduce friction in extreme applications. Less friction means less heat build up, less galling and longer tool life.

### STRIPPER

- Smooth rounded edges to eliminate sheet marking and improve piece part quality.
- Compatible with existing conventional tooling inventory for maximum flexibility.

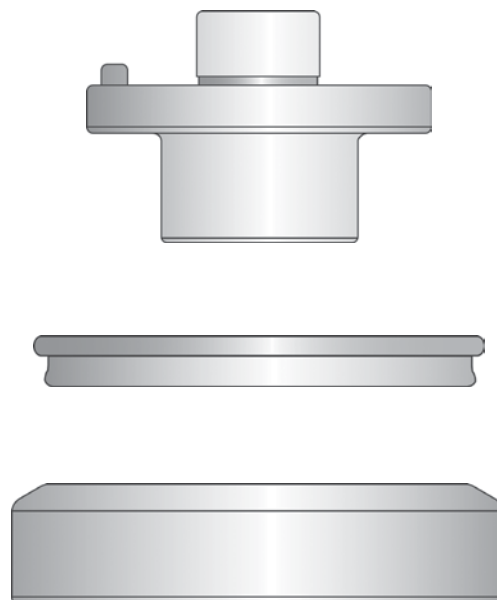
### SLUG FREE® DIE

- Slug Free die geometry eliminates slug pulling to improve piece part quality and increase tool life.
- Highly wear-resistant tool steel provides optimum balance between hardness and toughness, for extended life.

See page 53 for Add-Ons and Accessories

[Dimensions in Inches (mm)]

| MXC™ Punch - Standard  | Part Number | Price |
|--|-------------|-------|
| Round  | PXCD0A      |       |
| Shape  | PXCD_A      |       |
| Maxima™ Coating  |             |       |
| Ultra TEC® Adapter   | A0VDWSPA    |       |
| <b>MXC™ Clamp Clearing Option</b>  |             |       |
| D Station  | PXCW        |       |
| <b>MXC™ Stripper</b>   |             |       |
| Round  | SXCD0A      |       |
| Shape  | SXCD_A      |       |
| <b>Slug Free® Die</b>  |             |       |
| Round  | D0AD00      |       |
| Shape  | D0AD_0      |       |
| <b>Slug Free Light™ Die Option</b>                                       |             |       |
| Round  |             |       |
| Shape  |             |       |
| Die Shim<br>Package 3 each:<br>0.016(0.40)<br>0.032(0.80)<br>0.048(1.20) | MSAD        |       |



## PUNCH

- DuraSteel™ with superior hardness and toughness for extended interval between regrinds.
- Hardened double-D key for precise orientation of punches for improved piece part quality.
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## STRIPPER

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- Compatible with existing conventional tooling inventory for maximum flexibility.

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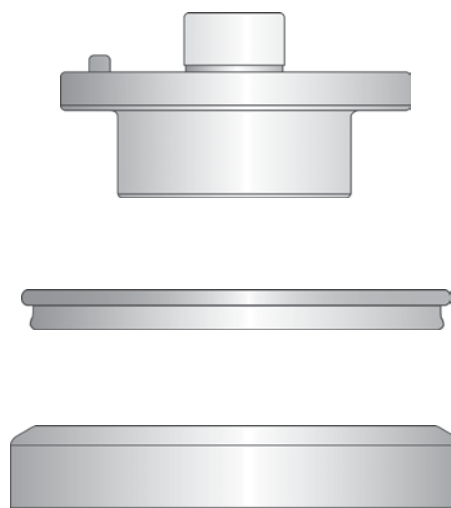
See page 53 for Add-Ons and Accessories

### STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):



[Dimensions in Inches (mm)]

| MXC™ Punch - Standard  | Part Number | Price |
|--|-------------|-------|
| Round  | PXCE0A      |       |
| Shape  | PXCE_A      |       |
| Maxima™ Coating  |             |       |
| Ultra TEC® Adapter   | AOVEWSPA    |       |
| <b>MXC™ Clamp Clearing Option</b>  |             |       |
| E Station  | PXCX        |       |
| <b>MXC™ Stripper</b>   |             |       |
| Round  | SXCE0A      |       |
| Shape  | SXCE_A      |       |
| <b>Slug Free® Die</b>  |             |       |
| Round  | DOAE00      |       |
| Shape  | DOAE_0      |       |
| <b>Slug Free Light™ Die Option</b>                                       |             |       |
| Round  |             |       |
| Shape  |             |       |
| Die Shim<br>Package 3 each:<br>0.016(0.40)<br>0.032(0.80)<br>0.048(1.20) | MSAE        |       |



### PUNCH

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### SLUG FREE® DIE

- Slug Free die geometry eliminates slug pulling to improve piece part quality and increase tool life.
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See page 53 for Add-Ons and Accessories

#### STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):



[Dimensions in Inches (mm)]

| Small Diameter Round Tools  |
|---|
| Point diameter 0.031(0.79) - 0.061(1.55) - to punch, stripper and die |
| Point diameter 0.062(1.56) - 0.092(2.35) - to punch, stripper and die |
| Narrow Width Shaped Tools   |
| Width is less than 0.079(2.00) - to punch, stripper and die           |
| Angle Setting   |
| Non-Standard Angle Setting - to punch, stripper and die               |
| Coatings  |
| 1/2" A Station  |
| 1-1/4" B Station  |
| 2" C Station  |
| 3-1/2" D Station  |
| 4-1/2" E Station  |

## MXC™ THICK TURRET TOOLING SYSTEM PARTS & ACCESSORIES



1-1/4" B Station Punch  
Retaining Ring  
**RR100010**

*Replacement Part*



1-1/4" B Station Punch  
Anti Rotation Pin  
**MATE00752**

*Replacement Part*



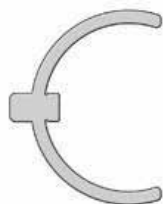
1-1/4" B Station Punch Felt  
Pad  
**FLT00001**

*To convert ABS punch to  
WLS® style*



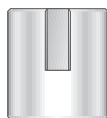
1-1/4" B Station Stripper  
Retaining Ring  
**MATE00754**

*Replacement Part*



Round Punches Only  
Anti-rotation Clip  
**A0VBWBAC**

*Replacement Part*



2" C Station HPT™  
Punch Adapter  
**A0VCWSPA**



3-1/2" D Station HPT™  
Punch Adapter  
**A0VDWSPA**



4-1/2" E Station HPT™  
Punch Adapter  
**A0VEWSPA**

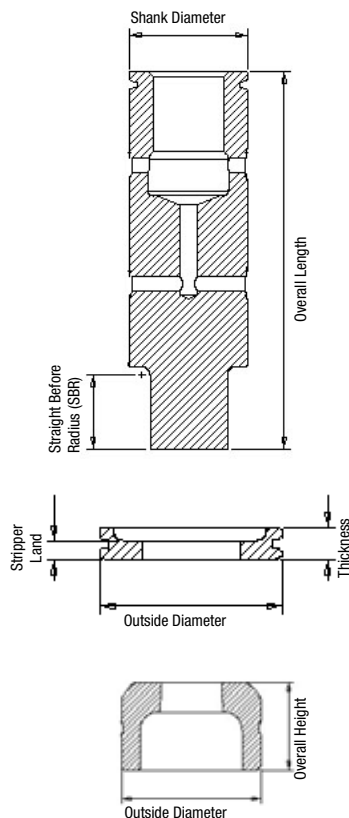
These Punch Adapters allow an HPT™ and/or MXC™ punch to be used  
in an Original Style Thick Turret, Ultra TEC® or Ultra ABS® holder.

HPT™ is a trademark of Wilson Tool International, Inc.

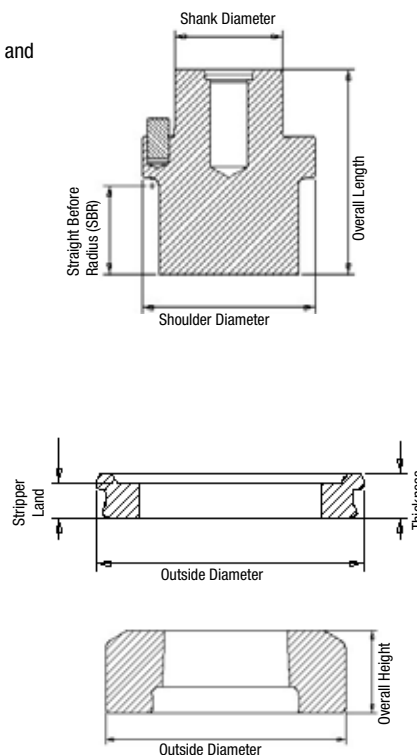
[Dimensions in Inches (mm)]

| MXC™ PUNCH                           |               |               |              |               |               |
|--------------------------------------|---------------|---------------|--------------|---------------|---------------|
| Station                              | 1/2" A        | 1-1/4" B      | 2" C         | 3-1/2" D      | 4-1/2" E      |
| Part Number                          | PXCA or PLCA  | PXCB or PLCB  | PXCC         | PXCD          | PXCE          |
| Maximum Punch Diagonal               | 0.500(12.70)  | 1.250(31.75)  | 2.000(50.80) | 3.500(88.90)  | 4.500(114.30) |
| Overall Length                       | 4.640(117.86) | 3.957(100.51) | 2.360(59.94) | 2.360(59.94)  | 2.360(59.94)  |
| Shank Diameter                       | 0.624(15.85)  | 1.249(31.72)  | 1.250(31.75) | 1.250(31.75)  | 1.250(31.75)  |
| Shoulder Diameter                    | n/a           | n/a           | 2.000(50.80) | 3.500(88.90)  | 4.500(114.30) |
| Straight Before Radius               | 0.740(18.80)  | 0.740(18.80)  | 1.004(25.50) | 1.004(25.50)  | 1.004(25.50)  |
| MXC™ STRIPPER                        |               |               |              |               |               |
| Part Number                          | SXCA          | SXCB          | SXCC         | SXCD          | SXCE          |
| Outside Diameter                     | 0.768(19.51)  | 1.497(38.02)  | 2.356(59.84) | 4.011(101.88) | 4.866(123.60) |
| Thickness                            | 0.272(6.91)   | 0.272(6.91)   | 0.390(9.91)  | 0.390(9.91)   | 0.390(9.91)   |
| Stripper Land                        | 0.157(3.99)   | 0.157(3.99)   | 0.315(8.00)  | 0.315(8.00)   | 0.315(8.00)   |
| Slug Free® and Slug Free LIGHT™ DIES |               |               |              |               |               |
| Part Number                          | DOAA          | DOAB          | DOAC         | DOAD          | DOAE          |
| Outside Diameter                     | 1.000(25.40)  | 1.875(47.63)  | 3.500(88.90) | 4.938(125.43) | 6.249(158.72) |
| Overall Height                       | 1.187(30.15)  | 1.187(30.15)  | 1.187(30.15) | 1.187(30.15)  | 1.187(30.15)  |
| Die Penetration                      | 0.118(3.00)   | 0.118(3.00)   | 0.118(3.00)  | 0.118(3.00)   | 0.118(3.00)   |

For 1/2" A and  
1-1/4" B Station  
(B station shown)



For 2" C, 3-1/2" D and  
4-1/2" E Station  
(C station shown)



[Dimensions in Inches (mm)]

## Inch Style tooling is designed with features to enhance punching performance, including:

- Premium High Speed Steel which is specially formulated to deliver superior abrasion resistance to extend the interval between regrinds.
- Near polished punch flanks with a 1/4 degree back taper to minimize friction, eliminate galling during stripping and improve piece part quality.
- Minute corner radii to eliminate chipping and extend punch life.
- Superior angularity and concentricity for improved hole quality.
- Thread size clearly marked for ease of use.
- Maxima™ coating available.



### 1/2" A STATION

Maximum Diagonal  
0.500(12.70)

Round **PAJA0A**  
Shaped **PAJA\_A**

**HeavyDuty**  
Round **PHJA0A**  
Shaped **PHJA\_A**

Replacement Clip  
**MATE02094**

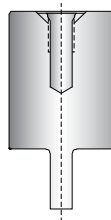


### 1-1/4" B STATION

Maximum Diagonal  
1.250(31.75)

Round **PAJB0A**  
Shaped **PAJB\_A**

**HeavyDuty**  
Round **PHJB0A**  
Shaped **PHJB\_A**

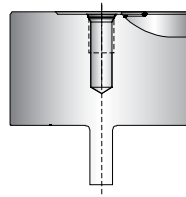


### 2" C STATION

Maximum Diagonal  
2.000(50.80)

Round **PAJCOA**  
Shaped **PAJC\_A**

**HeavyDuty**  
Round **PHJCOA**  
Shaped **PHJC\_A**

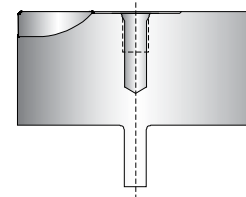


### 3-1/2" D STATION

Maximum Diagonal  
3.500(88.90)

Round **PAJDOA**  
Shaped **PAJD\_A**

**HeavyDuty**  
Round **PHJDOA**  
Shaped **PHJD\_A**



### 4-1/2" E STATION

Maximum Diagonal  
4.500(114.30)

Round **PAJEOA**  
Shaped **PAJE\_A**

**HeavyDuty**  
Round **PHJEOA**  
Shaped **PHJE\_A**

Fully Compatible with Wilson Inch Style

#### STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):



[Dimensions in Inches (mm)]



MATE ULTRA® MULTI TOOL 8 STATION ASSEMBLY

| UPPER:    | LOWER:   |
|-----------|--|
| MATE00967 | MATE00968<br><br>Achieved angles:<br>Stations 1, 3, 5, 7: Rounds only<br>Stations 2, 4, 6, 8: 0°, 90°, 225°              |
|           | MATE01764<br><br>Achieved angles:<br>Station 1, 3, 7: 90°<br>Station 2, 4, 6, 8: 0°, 90°, 225°<br>Station 5: Rounds Only |
|           | for Danobat machines (more slots).   |



SPECIFICATIONS:

|                         |  |
|-------------------------|--|
| Punch point range:      | 0.020(0.80) to 0.618(15.70)  |
| Tooling:                | Ultra® TEC® & Ultra® QCT™ 1/2" A station punches, strippers, and Slug Free® dies |
| Maximum tonnage:        | U.S. 6 Tons - 54 kN - 5.4 Metric Tons  |
| Max material thickness: | 6mm (.236")  |

MATE ULTRA MULTI TOOL 3 STATION ASSEMBLY

| UPPER:    | LOWER:  |
|-----------|---|
| MATE00969 | MATE00970<br><br>Achieved angles:<br>Each station: 0°, 45°, 90°   |
|           | MATE01030<br><br>Achieved angles:<br>Station 1, 3: 0°, 90°,<br>Station 2: 0°, 315°<br>for non-indexable machines.   |
|           | MATE02371*<br><br>Achieved angles:<br>Each station: 0°, 45°, 90°<br>for Ermakson single head machines with 103 mm slug hole.<br><br>* if slug hole is 90mm, use MATE00970 |



SPECIFICATIONS:

|                         |   |
|-------------------------|---|
| Punch point range:      | 0.020(.80) to 1.250(31.70)  |
| Tooling:                | Ultra TEC® & Ultra® QCT™ 1-1/4" B station punches, strippers, and Slug Free® dies |
| Maximum tonnage:        | U.S. 12 Tons - 107 kN - 11 Metric Tons  |
| Max material thickness: | 6mm (.236")   |

|  |   |
|--|---|
| <b>PATENT INFORMATION:</b><br>US 7726554 8376215<br>US 8464928 8152052<br>CA 2664784<br>MX 305729 306976 305727<br>CN 101528427<br>PAT. PEND | <b>USAGE NOTES:</b><br>Requires compatibility with machine ram and programming software.<br><br>Contact your punch press machine supplier for compatibility.<br><br>Part numbers for Multi Tool assemblies do not include punches and dies. |
|--|---|



3 or 8 Station MATE02330 Hardened Shim

[Dimensions in Inches (mm)]



## MATE FULLY INDEXABLE ULTRA UMT-8A MULTI TOOL 8 STATION ASSEMBLY

UPPER: MATE02467

LOWER: MATE02463



### SPECIFICATIONS

|  |  |   |
|--|--|---|
| <b>Punch point range:</b>  | .020(.51mm) to .618(15.70mm)   |   |
| <b>Tooling:</b>  | Ultra TEC® & Ultra® QCT™ 1/2" A station punches, strippers, and Slug Free® dies. |   |
| <b>Maximum tonnage:</b>  | U.S. 6 Tons - 54 kN - 5.4 Metric Tons.   |   |
| <b>Max material thickness:</b>                                   | 6mm (.236").   |   |
| <b>Achieved angles:</b><br>(if not using a rotating ram machine) | Station 1: 90°<br>Station 2: 135°<br>Station 3: 180°<br>Station 4: 225°          | Station 5: 300°<br>Station 6: 315°<br>Station 7: 0°<br>Station 8: 45° |

## MATE FULLY INDEXABLE ULTRA UMT-3B MULTI TOOL 3 STATION ASSEMBLY

UPPER: MATE02460

LOWER: MATE02455



### SPECIFICATIONS

|  |   |  |
|--|---|--|
| <b>Punch point range:</b>  | .020(.51mm) to 1.250(31.70mm)   |  |
| <b>Tooling:</b>  | Ultra TEC® & Ultra® QCT™ 1-1/4" B station punches, strippers, and Slug Free® dies |  |
| <b>Maximum tonnage:</b>  | U.S. 12 Tons – 107 kN – 11 Metric Tons  |  |
| <b>Max material thickness:</b>                                   | 6mm (.236")   |  |
| <b>Achieved angles:</b><br>(if not using a rotating ram machine) | Station 1: 90°<br>Station 2: 180°<br>Station 3: 0°                                |  |

MATE ULTRA® IMT™ MULTI TOOL SYSTEMS  
FOR PRIMA POWER ROTATING RAM MACHINES — 8 STATION AND 3 STATION

MATE FULLY INDEXABLE ULTRA IMT-8A MULTI TOOL 8 STATION ASSEMBLY

Ultra IMT™ 8-Station (not machine specific)

Upper: MATE01840  
Lower: MATE00050

Ultra IMT™ 8-Station (machine specific uppers & lowers)

Upper Only: MATE02068 JFY MACHINES  
Upper Only: MATE02007 BAYKAL MACHINES  
Lower Only: MATE02060 DURMA MACHINES



SPECIFICATIONS

|                                |  |
|--------------------------------|--|
| <b>Punch point range:</b>      | .020(.51mm) to .618(15.70mm)   |
| <b>Tooling:</b>                | Ultra TEC® & Ultra® QCT™ 1/2" A station punches, strippers, and Slug Free® dies. |
| <b>Maximum tonnage:</b>        | U.S. 7 Tons – 62 kN – 6.3 Metric Tons.   |
| <b>Max material thickness:</b> | 6mm (.236").   |

The fully indexable Ultra IMT™ 8-Station multi tool works with Ultra TEC® & Ultra® QCT™ A station punch, strippers and Thick Turret Slug Free® dies up to a maximum punch diagonal of .618" (15,70 mm). The multi tool accepts 8 "mini" stations. The multi tool can achieve any angle setting on the work piece.

MATE FULLY INDEXABLE ULTRA IMT-3B MULTI TOOL 3 STATION ASSEMBLY

Ultra IMT™ 3-Station (not machine specific)

Upper: MATE01850  
Lower: MATE00697

Ultra IMT™ 3-Station (machine specific uppers & lowers)

Upper Only: MATE02069 JFY MACHINES  
Upper Only: MATE02010 BAYKAL MACHINES  
Lower Only: MATE02058 DURMA MACHINES



SPECIFICATIONS

|                                |   |
|--------------------------------|---|
| <b>Punch point range:</b>      | .020(.51mm) to 1.250(31.75mm)   |
| <b>Tooling:</b>                | Ultra TEC® & Ultra® QCT™ 1-1/4" B station punches, strippers, and Slug Free® dies |
| <b>Maximum tonnage:</b>        | U.S. 16 Tons – 142 kN – 14.5 Metric Tons  |
| <b>Max material thickness:</b> | 6mm (.236")   |

The fully indexable Ultra IMT™ 3-Station multi tool works with Ultra TEC® & Ultra® QCT™ B Station punch, strippers and Thick Turret Slug Free® dies up to a maximum punch diagonal of 1.250" (31,75 mm). The multi tool can achieve any angle setting on the work piece.

See Ultra® IMT Product Bulletin for additional information (LIT00745)

\*Ultra® IMT is patented under: US: 7,726,554 and 8,152,052 and 8,464,928 and 8,413,561  
China: CN 101528427B  
Mexico: 306,976 and 305,729  
Canada: CA 2,664,784

[Dimensions in Inches (mm)]



**Concept:** One adjustable length holder can be used with a variety of special forming inserts. The benefits include reduced tooling cost, increased flexibility, and the length of the assembly can be accurately pre-set.

### Quick Length Adjustment:

The push-button length adjustment mechanism allows the overall length of the assembly to be set in 0.002(0.05) increments, without disassembly or removal from the machine.

### Adjustment Below the Shoulder:

The length adjustment is made below the shoulder of the assembly, thus maintaining the gap between the ram and the tool at top of stroke to prevent the ram from hitting the tool.

### Hardened Guides:

The hardened guides, combined with the lubrication grooves, reduce friction and extend turret bore life.

### Multiple Angle Settings:

All Ultraform® holders can be set at 0, 90, 180 and 270 degrees as a standard, for maximum flexibility.

### Tool Lubrication:

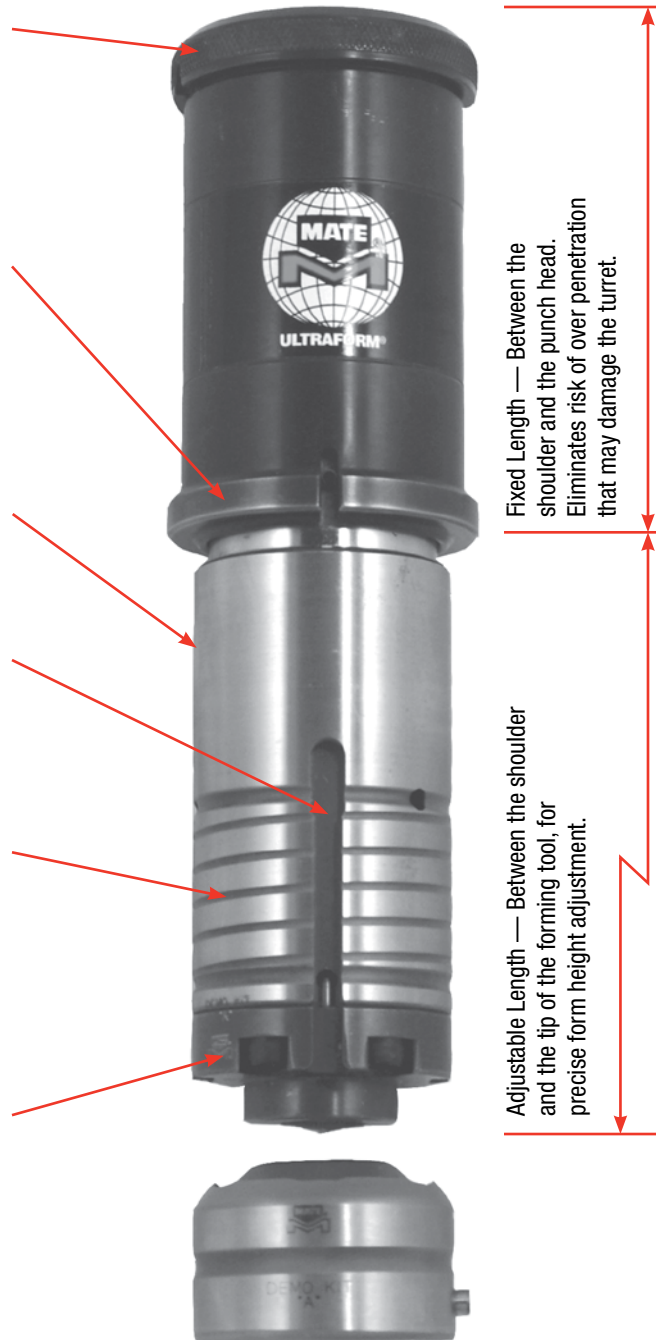
Ultraform® holders provide internal channels and external grease grooves to allow lubrication of forming tools. Ultraform® is compatible with all popular punch press machine tool lubrication systems.

### One Holder – Multiple Applications:

The Ultraform® holder system is designed to allow an unlimited number of forming tools to be used with the same holder, which reduces tooling inventory costs.

### Available for:

- 1-1/4" B Station
- 2" C Station
- 3-1/2" D Station
- 4-1/2" E Station



[Dimensions in Inches (mm)]

## ULTRAFORM®

Ultraform®



Ultraform XT™



Ultraform FX™



B Station **AFKB2**  
C Station **AFKC2**  
D Station **AFKD2**  
E Station **AFKE2**

B Station **MATE01755**  
C Station **MATE01821**  
D Station **MATE01824**  
E Station **MATE01827**

B Station **MATE01798**  
C Station **MATE01800**  
D Station **MATE01802**  
E Station **MATE01804**

|  | Ultraform® | Ultraform XT™ | Ultraform FX™ |
|--|------------|---------------|---------------|
| Ultraform inserts                                  | •          | •             | •             |
| Angle setting of 0°, 90°, 180° und 270°            | •          | •             | •             |
| Upper holder, fine length adjustment (0,05 mm)     | •          |               |               |
| Upper holder, adjustable length (>0,2 mm)          |            | •             |               |
| Fixed Length                                       |            |               | •             |
| Length adjustment without tools                    | •          |               |               |
| Upper holder, adjustable length in turret possible | •          |               |               |
| Hardened guide                                     | •          |               |               |
| Length adjustment under the upper turret           | •          | •             |               |
| Usable with lubricating system of the machine      | •          | •             | •             |
| Available for B - E Station                        | •          | •             | •             |
| Available for F Station                            | •          |               |               |

[Dimensions in Inches (mm)]

Combine the economy of original style thick turret tooling, with the convenience of integrated tool body construction, and the simplicity of the hexagon shaped punch head. Ideal for hydraulic punch presses with programmable ram control.



#### Dedicated Countersink Down

Complete Assembly with blank die

**XAABD0B399**

Replacement Countersink Tip

**XAABD0B316**



#### Dedicated Countersink Up

Complete Assembly with non-spring loaded lower.

**XAABD0B199**



#### Round Emboss with Dome Top

Complete Assembly with spring loaded lower

**XAABD0E099**



#### Round Emboss with Flat Top

Complete Assembly with spring loaded lower

**XAABD0E199**



#### Round Embossed Countersink Up

Complete Assembly with spring loaded lower

**XAABD0E999**



#### Round Extrude Up

Complete Assembly with spring loaded lower

**XAABD0D199**

Replacement Lower Insert

**XAABD0D104**



#### Single Round Knockout Up

Complete Assembly with spring loaded lower

**XAABD0K199**



#### Shear Button Up

Complete Assembly with spring loaded lower

**XAABD0S199**

Replacement Lower Insert

**XAABD0S104**

All 1-1/4" B station original style forming tools are designed to your specific material type, thickness, and machine model requirements. Interchangeability between machines is not recommended due to the variations in the shut height between different machines. For fully adjustable and interchangeable forming tools, we recommend the Mate Ultraform® forming tool system.



Clamp clearing dies are necessary when maximum sheet usage is required. The ability to punch as close to the clamps as possible reduces both material cost and waste.

Mate Versadie™ takes clamp clearing solutions to a new level with several unique design features. First, with replaceable die inserts, there is no need to replace the entire die. Versadie's inserts are designed to allow for the greatest lengths currently available in the industry, accommodating lengths up to 4.560(115.82mm) for E Stations and 3.560(90.42mm) for D Stations.

With its tighter tolerances of the insert to the holder, Versadie has superior overall quality.

For superior performance and longevity, Versadie's slitting die insert is made from MPM82 tool steel. Designed for use in high performance tooling systems, MPM82 is a high speed, particle metallurgy steel intended to provide high value and exceptional versatility making it perfect for slitting operations.

#### MPM82 TOOL STEEL OFFERS:

- Stronger dies that can withstand the most demanding punching operations
- Sharper edges on the die opening
- Increased machine uptime
- Reduced overall tooling costs
- Lower overall production costs

For maximum longevity, the die body allows shimming after the insert is sharpened during routine maintenance. There's no need for special shims—simply use standard thick turret die shims.

#### DIE INSERT

- Premium MPM82 tool steel for superior performance and longevity
- Inch and metric sizes
  - D Station from up to 3.560(90.42mm)
  - E Station from up to 4.560(115.82mm)
- Widths up to .509(12.93mm)
- Mate Slug Free® design

#### DIE BODY

- S7 Shock-Resisting Tool Steel

#### SHIMS

- D Station, package of 3 each: 0.016(0.41); 0.032(0.81); 0.048(1.22)
- E Station, package of 3 each: 0.016(0.41); 0.032(0.81); 0.048(1.22)

#### PRICING AND PART NUMBERS:

|           |                                   |
|-----------|-----------------------------------|
| MATE02223 | D Station Die Body Assembly       |
| MATE02225 | E Station Die Body Assembly       |
| D8AQ_A    | D Station Slitting Insert         |
| D8AR_A    | E Station Slitting Insert         |
| MSAD      | D Station Die Shims (set of 9)    |
| MSAE      | E Station Die Shims (set of 9)    |
| MATE02338 | D Station Insert Shims (set of 9) |
| MATE02339 | E Station Insert Shims (set of 9) |



Insert Shims



Die Shims

| RECTANGLES - STANDARD |      |          | RECTANGLES - SPECIAL SHAPES |             |                 |                  |                  |                   |               |                      |           |                    |            |               |  |
|-----------------------|------|----------|-----------------------------|-------------|-----------------|------------------|------------------|-------------------|---------------|----------------------|-----------|--------------------|------------|---------------|--|
| Rectangle             | Oval | Double D | Cham Corners                | Rad Corners | Rectangle/ Oval | Double Rectangle | Rectangle w/Tabs | Special Rectangle | Cable Opening | Cable Opening w/Tabs | Trapezoid | Elongated Double D | Break-Away | Parallelogram |  |
|                       |      |          |                             |             |                 |                  |                  |                   |               |                      |           |                    |            |               |  |

AVAILABLE SHAPES

[Dimensions in Inches (mm)]



Mate Eliminator™ (patents pending) punch tip lubrication pads assist in keeping the punch tip lubricated during the punching process.

Studies have shown that properly lubricated punch tips help extend tool life and keep the punch from overheating. In many situations, lubrication helps eliminate unwanted galling during the punching process.

Mate Eliminator lubrication pads are easy to install, especially on Mate Ultra TEC® A and B stations. Simply use the punch and stripper to “punch” the hole into the foam. Saturate the pad with 46-68 ISO viscosity hydraulic oil and you’re ready for gall-free punching.

## MATE ELIMINATOR LUBRICATION PADS:

- Made from polyether filter foam
- Available in A through E stations
- Compatible with all thick turret punch presses
- Made in U.S.A.

### STATION

A station, qty of 5

B station, qty of 5

C station, qty of 5

D station, qty of 4

E station, qty of 4

### PART NUMBER

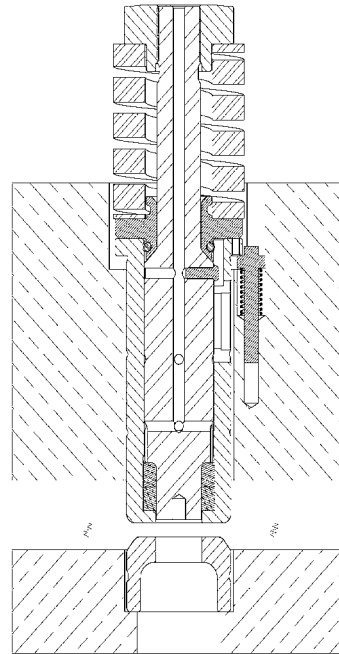
**MATE02028**

**MATE02029**

**MATE02030**

**MATE02031**

**MATE02032**



[Dimensions in Inches (mm)]

The Mate Pilot™ Turret Calibration System is the most accurate system for ensuring precision concentric and angular alignment of thick turret punch press stations available. The Mate Pilot Turret Calibration System operates in two modes:

- **Verification Mode** – Confirm the precise concentric and angular alignment of your turret to maintain high quality piece part production and maximum tool life.
- **Alignment Mode** – Restore the concentric and angular alignment of each station with the same or better precision as the initial machine installation.



**THE MATE PILOT™ TURRET CALIBRATION SYSTEM IS SIMPLY THE BEST SYSTEM AVAILABLE.**

**Accurate:**

Each calibration instrument is machined from a single piece of high quality tool steel. The upper and lower halves are separated near the end of the production process, just prior to installation of the hardware. This eliminates the possibility of cumulative tolerances adversely affecting the accuracy of the finished instrument.

**Simple to Use:**

Install the two halves of the calibration instrument into the turret station to be aligned. Rotate turret to position the station to be aligned under the machine ram. Use the integral adjustment handle to draw the two halves of the calibration instrument together.

The interlocking design of the interface between the two halves causes the loosened die holder assembly to be drawn into concentric and angular alignment relative to the upper bore as the two halves of the calibration instrument engage.

**The tri-color light indicates alignment.**

- Engaged, but not aligned
- Angularity and concentricity within 0.0012(0.030)
- Angularity and concentricity within 0.0003(0.008)\*



**Comprehensive:**

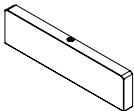
The Mate Pilot Calibration System is available in all five thick turret station sizes and is also available to suit the Prima-Power Multi-Tool stations. The Mate Pilot Calibration System is available as a set to suit thick turret presses.

| Station       | Part Number | Package A | Package F |
|---------------|-------------|-----------|-----------|
| 1/2" A        | MATE00670   | •         |           |
| 1-1/4" B      | MATE00666   | •         | •         |
| 2" C          | MATE00667   | •         | •         |
| 3-1/2" D      | MATE00668   | •         | •         |
| 4-1/2" E      | MATE00669   | •         |           |
| Multi-Tool    | MATE00671   |           | •         |
| Accessory Kit | MATE00662   | •         | •         |
|               |             | MATE00665 | MATE00672 |

**MATE THICK TURRET LINE UP TOOL ALIGNMENT BAR UPGRADE.**

The upgraded bar is larger and easier to use. It allows for easier access for the alignment process.

Line Up Tool Bar **MATE02227**



\*Angularity and concentricity within 0.0003(0.008) - Green Indicator Light - is recommended when punching materials with a thicknesses of 0.048(1.20) or less.

[Dimensions in Inches (mm)]

**MATE RAPIDSET ADJUSTABLE CANISTERS FOR ORIGINAL STYLE AND AMX™ TOOLING SYSTEMS ARE DESIGNED TO REDUCE YOUR SET-UP TIME AND MAXIMIZE PRODUCTIVITY.**

**FEATURES INCLUDE:**

- Fast, easy punch length adjustment without removal from the guide\*...reduces downtime and increases productivity.
- Self-contained, constant pre-loaded spring pack for consistent stripping pressure and reliable operation.
- Consistent die penetration reduces slug pulling.
- Canisters feature textured surface with knurled Gription™ ring for ease of handling.
- Only 1 clamping screw to adjust length.
- 0.315" (8,00mm) grind life in 0.039" (1,00mm) material with 0.118" (3,00mm) die penetration.
- Existing Mate Original Style grind life is much less...only 0.189" 4,82mm)

**FULLY COMPATIBLE WITH:**

- Mate Original Style tooling
- Mate AMX™ tooling
- Amada Standard Style tooling
- Amada Standard Style ABS tooling
- Wilson Standard Style tooling



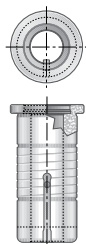
- MATE02044** Rapidset A Station Canister  
**MATE02040** Rapidset A Station Seal Kit\*\*  
**MATE02050** Rapidset B Station Canister  
**MATE02043** Rapidset B Station Seal Kit\*\*

**Available for:** 1/2" A-station and 1-1/4" B-station

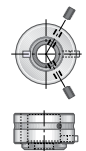
\* Shapes only \*\*Required for use in AMX/ABS Environments

[Dimensions in Inches (mm)]

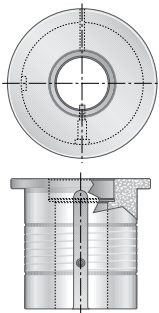
THICK TURRET AND ULTRA® ADAPTERS



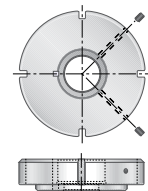
1-1/4" to 1/2"  
B to A Station  
Punch Guide Adapter  
**APLG00AD**



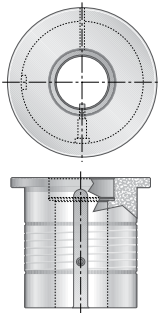
1-1/4" to 1/2"  
B to A Station  
Die Adapter  
**ADLG00AD**



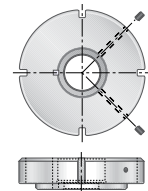
3-1/2" to 1-1/4"  
D to B Station  
Punch Guide Adapter  
**APLK00AD**



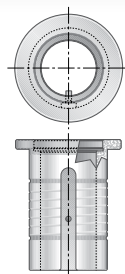
3-1/2" to 1-1/4"  
D to B Station  
Die Adapter\*  
**ADLK00AD**



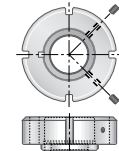
4-1/2" to 1-1/4"  
E to B Station  
Punch Guide Adapter  
**APLM00AD**



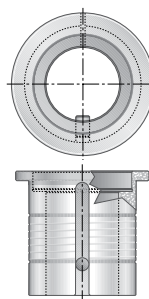
4-1/2" to 1-1/4"  
E to B Station  
Die Adapter  
**ADLM00AD**



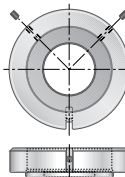
2" to 1-1/4"  
C to B Station  
Punch Guide Adapter  
**APLH00AD**



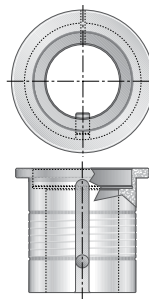
2" to 1-1/4"  
C to B Station  
Die Adapter  
**ADLH00AD**



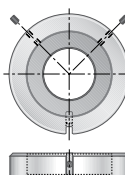
3-1/2" to 2"  
D to C Station  
Punch Guide Adapter  
**APLJ00AD**



3-1/2" to 2"  
D to C Station  
Die Adapter\*  
**ADLJ00AD**



4-1/2" to 2"  
E to C Station  
Punch Guide Adapter  
**APLL00AD**



4-1/2" to 2"  
E to C Station  
Die Adapter  
**ADLL00AD**

\*Use this table to select the appropriate die adapter for use in the Prima Power upforming station.  
When using a die adapter in an upforming station, the press upper ram stroke may need to be reduced by 0.079(2.00).

|                      | Non-Indexable Upform Station |                  | Indexable Upform Station |                  |
|----------------------|------------------------------|------------------|--------------------------|------------------|
|                      | Piercing                     | Forming          | Piercing                 | Forming          |
| 3-1/2" D to 1-1/4" B | <b>MATE00727</b>             | <b>MATE00725</b> | <b>MATE00727</b>         | <b>MATE00725</b> |
| 3-1/2" D to 2" C     | <b>MATE00721</b>             | <b>ADLJFUAD</b>  | <b>MATE00721</b>         | <b>MATE00723</b> |

[Dimensions in Inches (mm)]



## ULTRA® SYSTEM ANTI-ROTATION CLAMPS FOR ROUND PUNCHES



1/2" A Station  
Original Style Round Punch  
Anti-Rotation Clamp  
**AOVAASAC**



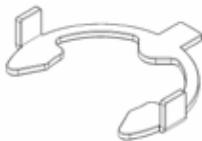
1-1/4" B Station  
Original Style Round Punch  
Anti-Rotation Clamp  
**AOVBASAC**



1-1/4" B Station HP (Series 90)  
Style Punch with hook ring  
Anti-Rotation Clip  
**AOVBWBAC\*\***



1-1/4" B Station Punch  
Length Adjustment Clamp  
HP (Series 90) Driver Assembly  
**AOVBWGAC\*\*\***

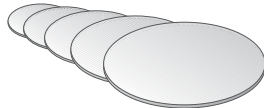


Ultra TEC B Station Anti-Rotation  
Clip For Wilson HP Double D  
Canister  
**AOVBWHAC\*\*\***



Ultra TEC B Station Anti-Rotation  
Clip For Wilson HP2 Canister  
Assembly  
**AOVBWKAC\*\*\***

## SOFT FACE STRIPPER PADS - ADHESIVE BACKED URETHANE

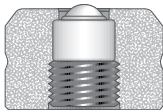


Soft faced stripper pads for thick turret and Ultra style tooling - 0.009(0.25) thick adhesive backed urethane to prevent material scratching and reduce noise levels.

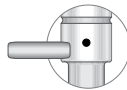
- A Station Soft Face Stripper Pad - Package 6
- B Station Soft Face Stripper Pad - Package 6
- C Station Soft Face Stripper Pad - Package 6
- D Station Soft Face Stripper Pad - Package 4
- E Station Soft Face Stripper Pad - Package 4

- AOLA00SF**
- AOLB00SF**
- AOLC00SF**
- AOLD00SF**
- AOLE00SF**

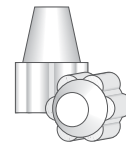
## MORE ACCESSORIES FOR ULTRA® AND ULTRAFORM®



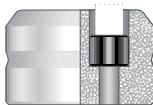
Roller Die for Ultraform®  
System Special Applications  
(1-1/4" B Station Only)  
**AOLB00FG**



Pin for Original Style Round Punch  
when used with Ultra® Guide 1/2" A and  
1-1/4" B Station (12 minimum)  
**MIS60256\***



Urethane Slug Ejectors  
3 and 6 mm Diameters  
(12 minimum)  
3 mm Urethane Slug Ejectors  
**URE40002\***  
6 mm Urethane Slug Ejectors  
**URE40010\***



Brush Die for Ultraform  
System Special Applications  
(B thru E Stations)

- B Station **ADLB0001**
- C Station **ADLC0001**
- D Station **ADLD0001**
- E Station **ADLE0001**



Replacement Brush  
Assembly for Brush Dies (3 minimum)  
\*Not compatible with the new plastic Thick Turret  
brush dies.

Medium India Oil Stone  
**ST029807**

6" Cratex Rubber Abrasive Stick  
**ST029911**



- Thick Turret Brush Die
- A Station **MATE01895**
  - B Station **MATE01896**
  - C Station **MATE01897**
  - D Station **MATE01898**
  - E Station **MATE01899**



**AOLEH**



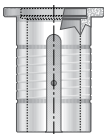
Clip Tool for Ultra® 1-1/4" B Station  
Fully Guided Punch Guide  
Stripper Clip  
**MIS59723**

- \* Items sold separately beyond minimum quantity
- \*\* Order AOVBWBAC when using Series 90 punches with wire ring and pin or ball.
- \*\*\* AOVBWGAC, AOVBWHAC & AOVBWGAC adapt canister to allow using Ultra punches but only in Wilson shape guides. Round guides will not work.

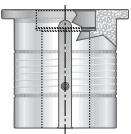
[Dimensions in Inches (mm)]

THICK TURRET, ULTRA® AND ULTRA TEC® ACCESSORIES

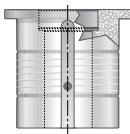
LVD STYLE TO ACCEPT LVD, THICK TURRET AND ULTRA TEC® GUIDE ASSEMBLIES



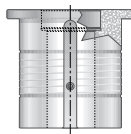
2" to 1-1/4"  
LVD C Station to  
Thick Turret B Station  
Punch Guide  
Adapter Assembly  
**LPLH00AD**



3-1/2" to 1-1/4"  
LVD D Station to  
Thick Turret B Station  
Punch Guide  
Adapter Assembly  
**LPLK00AD**



3-1/2" to 2"  
LVD D Station to  
LVD C Station  
Punch Guide  
Adapter Assembly  
**LPPJ00AD**



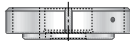
3-1/2" to 2"  
LVD D Station to  
Thick Turret C Station  
Punch Guide  
Adapter Assembly  
**LPLJ00AD**



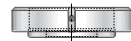
2" to 1-1/4"  
C to B Station  
Die Adapter  
**ADLH00AD**



3-1/2" to 1-1/4"  
D to B Station  
Die Adapter  
**ADLK00AD**



3-1/2" to 2"  
D to C Station  
Die Adapter  
**ADLJ00AD**



3-1/2" to 2"  
D to C Station  
Die Adapter  
**ADLJ00AD**

HP (SERIES 90) PUNCH ADAPTERS



C Station HP (Series 90)  
Punch Adapter  
**AOVCSWA**

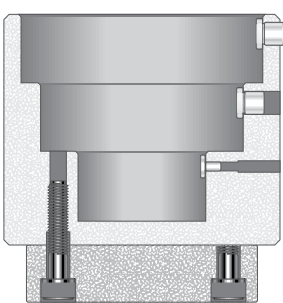


D Station HP (Series 90)  
Punch Adapter  
**AOVDWSPA**



E Station HP (Series 90)  
Punch Adapter  
**AOVEWSPA**

THICK TURRET - ULTRA® 2" C, 3-1/2" D AND 4-1/2" E STATION  
TORQUE STAND ASSEMBLY AND ACCESSORIES



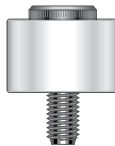
Ultra TEC® / Thick Turret Torque Stand  
Assembly with 3/8" Drive 10mm Hex Key  
2" C, 3-1/2" D and 4-1/2" E Stations  
**MATE00083**



MIS59483  
10mm Hex Key  
also available sepa-  
rately



Torque Wrench  
for use with Torque Stand  
Fixed setting at 75 lbs. ft. (102 N•m)  
**MIS99030**



Ultra TEC® Spacer for  
Amada Tightening  
Fixture 2" C Station  
**APLEP**

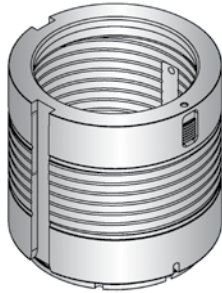
[Dimensions in Inches (mm)]





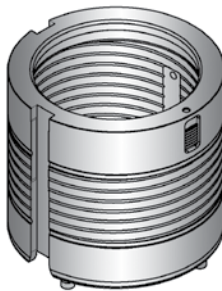
## Ultra TEC® Replacement Locking Ring Kit

|          |           |
|----------|-----------|
| 2" C     | MATE00628 |
| 3-1/2" D | MATE00629 |
| 4-1/4" E | MATE00630 |



## Ultra TEC® Replacement Guide Body Kit

|          |           |
|----------|-----------|
| 2" C     | MATE00631 |
| 3-1/2" D | MATE00632 |
| 4-1/4" E | MATE01808 |

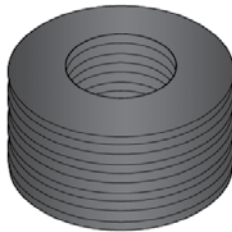


## Ultra TEC® Fully Guided Replacement Guide Body Kit

|          |           |
|----------|-----------|
| 2" C     | MATE00634 |
| 3-1/2" D | MATE00636 |
| 4-1/4" E | MATE01812 |

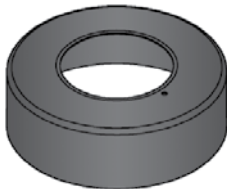
## Ultra TEC® Fully Guided Replacement Guide Body Kit (3-slot)

|          |           |
|----------|-----------|
| 2" C     | MATE00635 |
| 3-1/2" D | MATE00637 |



## Ultra TEC® Replacement Spring Kit

|          |                        |
|----------|------------------------|
| 2" C     | MIS61647P (18 springs) |
| 3-1/2" D | MATE00270 (7 springs)  |
| 4-1/4" E | MATE00270 (7 springs)  |



## Ultra TEC® Replacement Spring Cover

|          |          |
|----------|----------|
| 2" C     | MIS99709 |
| 3-1/2" D | A0VDSTCV |
| 4-1/4" E | A0VDSTCV |

[Dimensions in Inches (mm)]



THICK TURRET TOOLING CARTS

Increase your efficiency and protect your punch press tooling with Mate tooling cabinets, made in the USA exclusively for Mate by Versatility Tool Works. Mate tooling cabinets feature robotically mig-welded 14-, 16- and 18-gauge construction for strength and durability. Mate tooling cabinets use Versatility's exclusive 1-ata-Time™ drawer lock safety system that provides best-in-class safety by preventing cabinet and cart tip-over. The standard integrated retainer top keeps items from falling off the cabinet. The drawer divider system is completely user configurable offering virtually unlimited combinations.

Options include mounted fixture kit with torque wrench; maple top; mobile base with T-handle; and drawer inserts to better organize upper assemblies



8-drawer cabinet with optional mobile base.

8-Drawer Configuration (MATE02424)

- Stores up to 460 tools and guide assemblies in 8 lockable drawers
- 2 — 3-inch drawer for A station tooling
- 3 — 3-inch drawers for B station tooling
- 1 — 5-inch drawer for C and D station tooling
- 1 — 5-inch drawer for D and E station tooling
- 1 — 9-inch drawer for guide assemblies and large station forming tooling
- Standard vinyl mat top
- Dimensions: 39" (990,6 mm) wide X 27.5" (698,5 mm) deep X 43" (1092,20 mm) high
- Weight: 600 pounds (272,6 kg)



6-drawer cabinet with optional maple top.

6-Drawer Configuration (MATE02423)

- Stores up to 382 tools and guide assemblies in 6 lockable drawers
- 2 — 3-inch drawer for A station tooling
- 2 — 3-inch drawers for B station tooling
- 1 — 5-inch drawer for C, D and E station tooling
- 1 — 9-inch drawer for guide assemblies and large station forming tooling
- Standard vinyl mat top
- Dimensions: 39" (990,6 mm) wide X 27.5" (698,5 mm) deep X 33" (838,2 mm) high
- Weight: 485 pounds (220,0 kg)

|           | Product          |
|-----------|------------------|
| MATE02424 | 8-drawer cabinet |
| MATE02423 | 6-drawer cabinet |

[Dimensions in Inches (mm)]



Want to organize your tool room? How about managing jobs on the shop floor? Designed for lean visual management, Mate EasyView™ tooling carts can help you reduce costs by increasing your shop's productivity.



Mate EasyView™ carts keep your tooling protected and organized, reducing tool damage and set-up time. Because all tooling is visible to the user, operators can eliminate wasted time looking for the correct tool. Users can quickly locate the correct tool, making it faster and easier for them to make the correct decision every time.

Built from heavy duty 14-gauge steel and powder-coated for durability, these carts can withstand the harshest locations. With shelves available in a number of standard configurations, the Mate EasyView™ cart is completely modular, allowing you to configure it to your specific needs. Shelves are adjustable in 1 inch increments.

The base assembly provides mobility on all EasyView™ carts. Equipped with four 700-pound capacity casters, this base allows you to carry an amazing 2,800 pound load. This means you can stage your jobs ahead of time and locate the cart near the machine, saving you valuable set-up time.

## ORDERING INFORMATION:

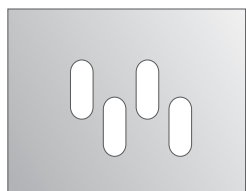
| 1. ORDER MOBILE BASE ASSEMBLY  |   |  |
|--|---|--|
| Part Number  | Description   |  |
| MATE01705  | EasyView™ mobile base assembly and standard handle                                |  |
| 2. CHOOSE YOUR HEIGHT  |   |  |
| • You can choose either a 36-inch or 48-inch side panels                                   |   |  |
| Part Number  | Description   |  |
| MATE01702  | EasyView™ standard side assembly, 36" tall, powder coated black, qty 2            |  |
| MATE01703  | EasyView™ standard side assembly, 48" tall, powder coated black, qty 2            |  |
| 3. CHOOSE YOUR SHELVES   |   |  |
| • You must select a minimum of 3 shelves for either height to ensure stability of the cart |   |  |
| Part Number  | Description   |  |
| MATE01704  | EasyView™ standard blank shelf  |  |
| MATE01709  | EasyView™ Ultra® and Thick Turret A-Station shelf                                 |  |
| MATE01710  | EasyView™ Ultra® and Thick Turret B-Station shelf                                 |  |
| MATE01706  | EasyView™ Ultra® and Thick Turret C-Station shelf                                 |  |
| MATE01707  | EasyView™ Ultra® and Thick Turret D-Station shelf                                 |  |
| MATE01708  | EasyView™ Ultra® and Thick Turret E-Station shelf                                 |  |
| MATE01711  | EasyView™ Thick Turret C, D, and E-Station canister/guide shelf                   |  |
| 4. ADD OPTIONAL TRAY   |   |  |
| Part Number  | Description   |  |
| MATE01712  | EasyView™ side tray (Use to store lubricants, fasteners, assembly tools and more) |  |
| 5. YOU'RE ON YOUR WAY TO HIGHER PRODUCTIVITY AND INCREASED UPTIME!                         |   |  |

[Dimensions in Inches (mm)]

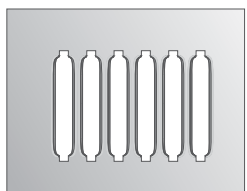
SPECIAL APPLICATIONS



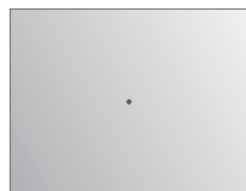
Cluster – Round



Cluster – Shape



Card Guide



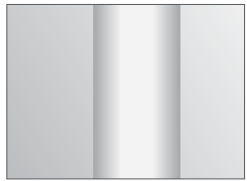
Centerpoint



Countersink – Round



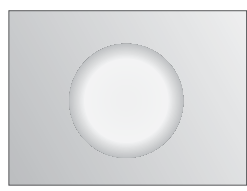
Countersink – Shape



Emboss – Beading



Emboss – Edgeform



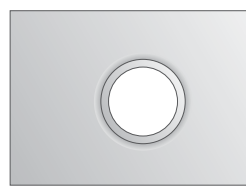
Emboss – Formed  
(Round and Shaped)



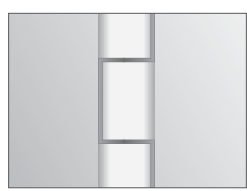
Emboss – Cold Forged



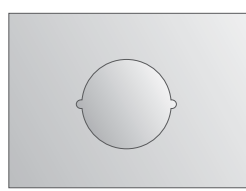
Extrusion – Tapping



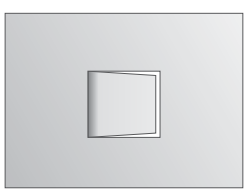
Extrusion – Flanged Hole



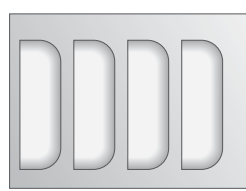
Hinge Tool



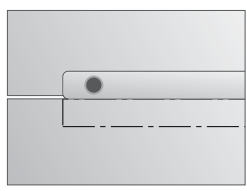
Knockout



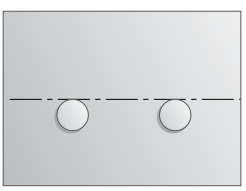
Lance And Form



Louver



Scissortool™



Shearbutton  
(Round and Shaped)



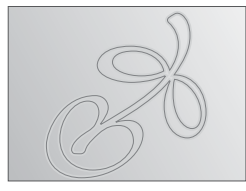
Rollerball™



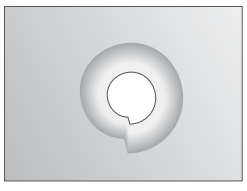
Sheetmarker™



Stamping – Alpha Numeric



Stamping – V-line



Threadform

[Dimensions in Inches (mm)]



**Countersink—Dedicated****Use:**

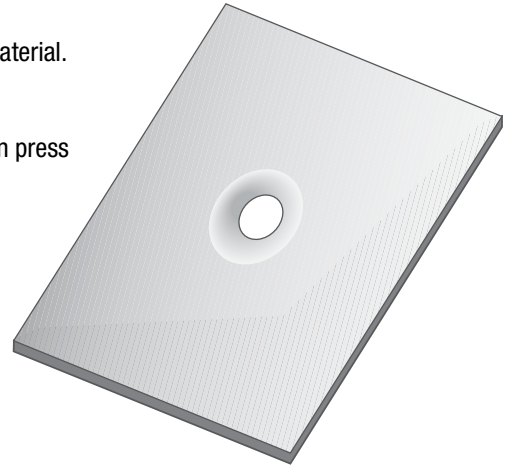
Allows screw and rivet head to sit flush or below the surface of the material.

**Typical Application:**

- Material thickness from 0.048(1.22) to 0.250(6.35), dependent upon press tonnage capacity.

**Comments:**

- The shoulder (dedicated) style is generally ordered for one material thickness and screw size.
- The shoulder style coins the surrounding area, producing a clean flat countersink with minimal burring.

**Emboss—Continuous****Use:**

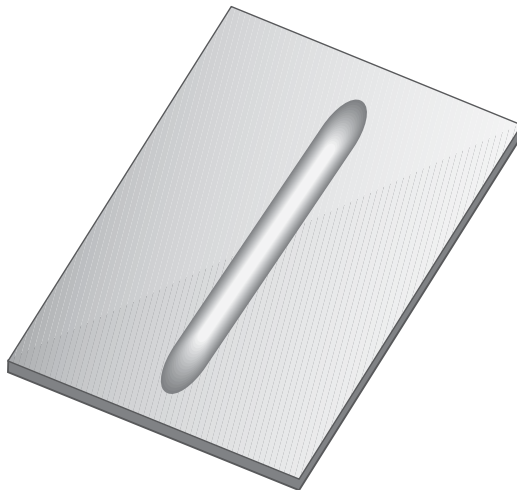
As a stiffener to add rigidity to sheet metal panels.

**Typical Application:**

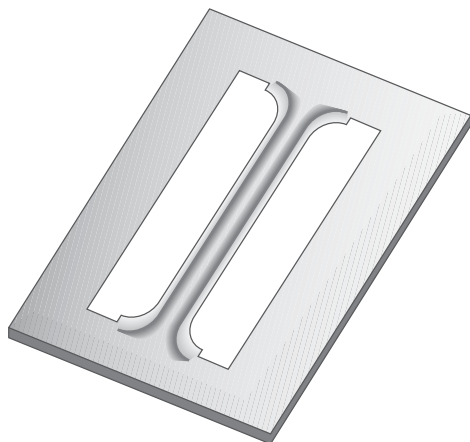
- Material thickness from 0.027(0.70) to 0.250(6.35), dependent upon press tonnage capacity.

**Comments:**

- The increment between hits is determined by the cosmetic requirements for the finished part. Smaller increments result in improved appearance.
- The form height should be as low as possible to minimize sheet distortion.



[Dimensions in Inches (mm)]



### Card Guide

**Use:**

As a retainer for printed circuit boards.

**Typical Application:**

- Material thickness from 0.040(1.00) to 0.078(2.00).
- Maximum recommended top-of-sheet to top-of-form height is 0.125 (3.20).

**Comments:**

- Length of the card guide is dependent upon station size and machine tonnage.
- Also available as a continuous form to increase productivity and flexibility.

### Cluster

**Use:**

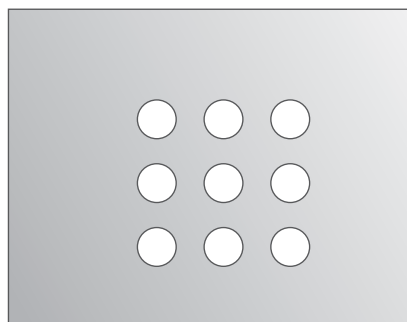
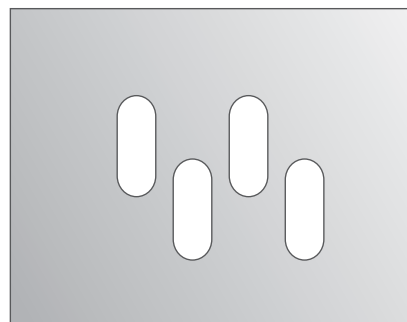
To produce multiple holes with minimal hits.

**Typical Application:**

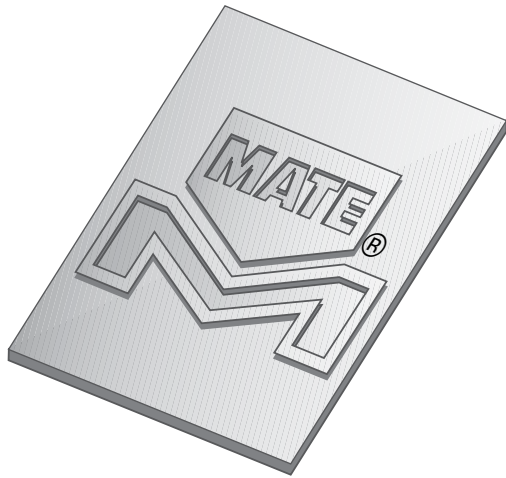
- Material thickness from 0.020(0.50) to 0.157(4.00).
- Other constraints dependent upon station size, punch size and shape and press tonnage.

**Comments:**

- For greater hole uniformity and flatter sheets, spread the punches to avoid punching adjacent holes in the same hit.
- Do not re-punch through previously punched holes to complete a pattern. A single hit tool may be necessary.



[Dimensions in Inches (mm)]

**Emboss—Cold Forged****Use:**

To produce a logo or design on a part.

**Typical Application:**

- Material thickness from 0.018(0.46) to 0.118(3.00).
- Best results in material thickness from 0.040(1.00) to 0.078(2.00).
- Maximum size dependent on the tooling style, station size and press tonnage capacity.

**Comments:**

- An exact drawing, CAD file, or artwork of logo is required to produce this type of assembly.

**Emboss—Formed****Use:**

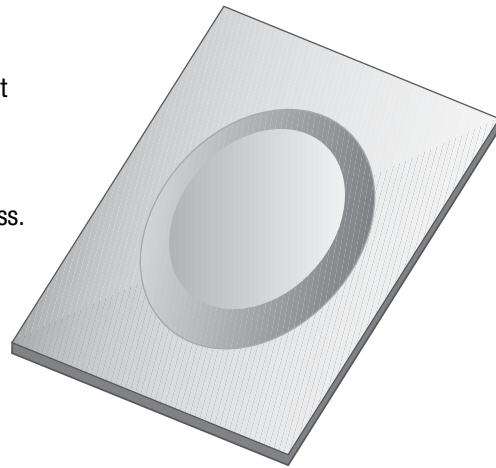
Provides a recess or a protrusion.

**Typical Application:**

- Material thickness from 0.027(0.70) to 0.250(6.35), dependent upon press tonnage capacity.

**Comments:**

- Best results are attained when the side wall angle is 45° or less.
- Optimum form height is 3 x the material thickness or less.



[Dimensions in Inches (mm)]

## Extrusion—Tapping

**Use:**

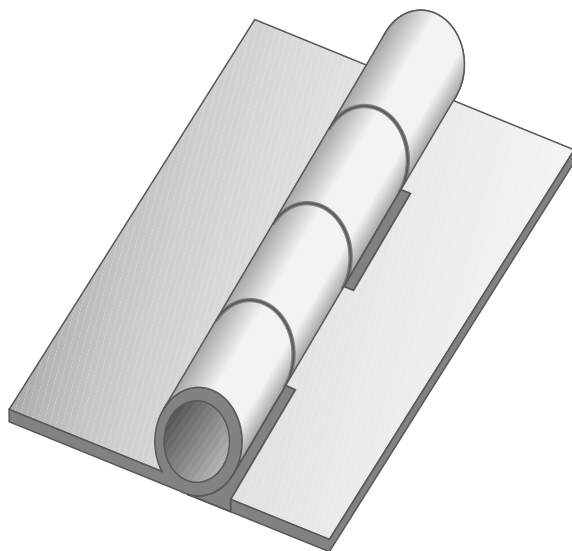
Threading for screws and increased bearing area for tubes, etc.

**Typical Application:**

- Material thickness from 0.031(0.80) to 0.106(2.70).
- Overall Height – 2x to 2.5x material thickness.

**Comments:**

- Additional inverted dies are required to accommodate different material thickness.



## Hinge

**Use:**

To create hinge knuckles as integral elements on sheet metal components.

**Typical Application:**

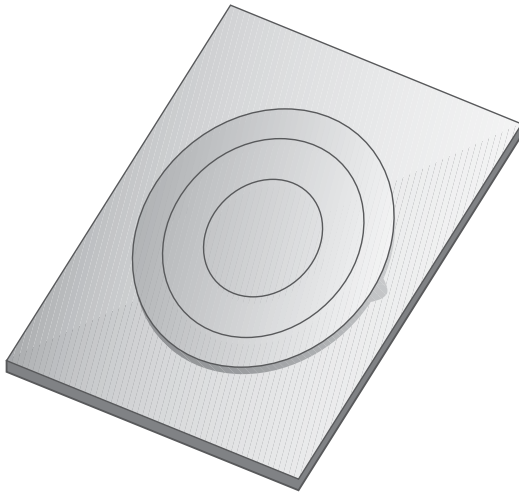
- The range of this application is dependent on a combination of the material thickness, pin diameter and feed gap of the press.

**Comments:**

- An integral hinge knuckle on a component will eliminate the costly process of purchasing and assembling separate hinges.

[Dimensions in Inches (mm)]





## Knockout

### Use:

Allows optional pathway for electrical cable.

### Typical Application:

- Material thickness from 0.024(0.60) to 0.118(3.00).
- Maximum size dependent upon material type, thickness and press tonnage capacity.

### Comments:

- The tool can normally be used with other material thickness within a range. of + or - 0.016(0.41) from design thickness.
- Maintain 0.236(6.00) difference between diameters used for knockout.

## Lance And Form

### Use:

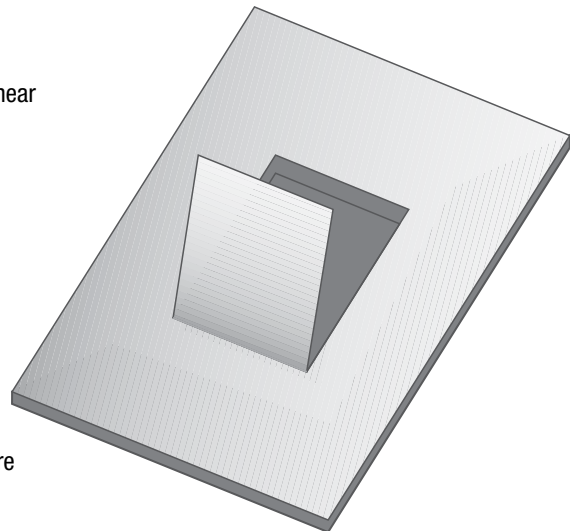
For air flow, decoration, as card guides, location markers, shear tabs, wire harnesses or clip attachments.

### Typical Application:

- Material thickness from 0.020(0.50) to 0.118 (3.00).
- Maximum recommended top-of-sheet to top-of-form height is 0.250(6.40).
- Other limitations include material type, station size, and press tonnage capacity.

### Comments:

- The inclusion of a 5° draft angle is recommended to assure reliable operation of open ground forms.



[Dimensions in Inches (mm)]

## Louver

### Use:

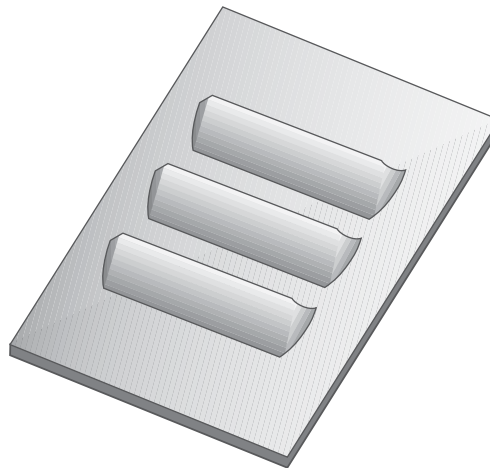
To provide air flow or ventilation.

### Typical Application:

- Material thickness from 0.028(0.70) to 0.106(2.70).
- Maximum recommended top-to-top height is 0.255(6.50).

### Comments:

- One tool cuts the sheet and produces the form in the same operation.
- The tool is designed for a specific material thickness.



### Insert Sizes Available

| Fractional | Decimal | Metric |
|------------|---------|--------|
| 3/32       | 0.094   | 2.40   |
| 1/8        | 0.125   | 3.12   |
| 3/16       | 0.188   | 4.50   |
| 1/4        | 0.250   | 6.34   |



## Stamp—Alpha Numeric

### Use:

To provide indelible marking of alpha-numeric characters on the top or bottom of the sheet.

### Typical Application:

- Material thickness 0.032(0.80) up to machine capacity.
- Characters available in 4 popular sizes.  
See table.

### Comments:

- Individual characters can be easily changed.

[Dimensions in Inches (mm)]

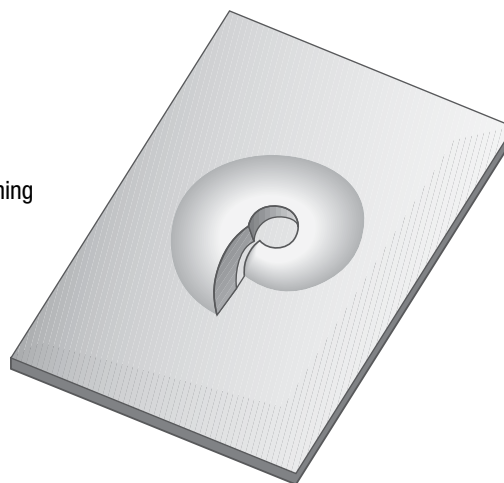
## Threadform

**Use:**

To provide a form to accept a sheet metal screw.

**Typical Application:**

- Material thickness 0.020(0.50) to 0.048(1.20).
- Size is dependent upon screw size selected.
- Thicker material requires a countersink operation or thinning prior to threadforming.



## V-Line Inscription

**Use:**

To produce logos, messages, or symbols.

**Typical Application:**

- Material thickness from 0.032(0.80) up to machine capacity.
- Maximum size is dependent on station size, size of symbols and characters, and press tonnage capacity.

**Comments:**

- V-Line Stamping – renders the image with a sharp line stamped into the surface.
- An exact drawing, CAD file, or artwork of logo is required in order to produce this type of assembly.

[Dimensions in Inches (mm)]

## Mate Rollerball™

### Use:

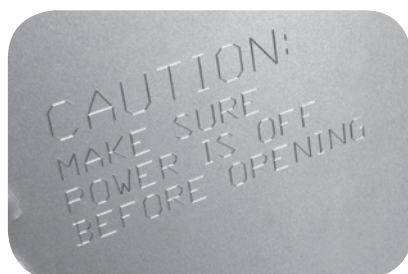
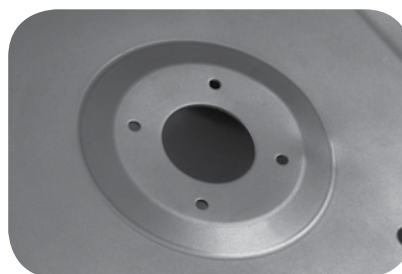
The Rollerball™ is an exciting new concept designed by Mate Precision Tooling to take advantage of the extended programming capabilities of hydraulic and other punch presses capable of operating in the x and y axis with the ram down. The Rollerball™ gives you the benefit of making forms not possible with single hit forming tools.

### Typical Application:

- Maximum workable material thickness is 0.105(2.70) mild steel.

### Comments:

- The press must be capable of holding the ram down while the sheet is moved in the x and/or y.



## Mate Sheetmarker™

### Use:

For markings or etchings on the surface of sheet metal. The tool uses a diamond pointed insert in a spring loaded holder to create the marking.

### Typical Application:

- The Sheetmarker™ Tool can be used on all material types and thicknesses.

### Comments:

- A wide variety of results can be produced, ranging from very light etching to fairly deep grooves in the sheet.
- Variations are achieved with a combination of three spring pressures and two insert point angles.

### Comments:

- The press must be capable of holding the ram down while the sheet is moved in the x and/or y.

[Dimensions in Inches (mm)]

**Mate SnapLock™****Use:**

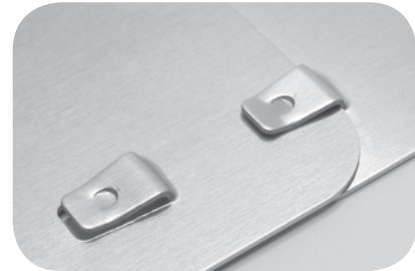
For joining materials, thus eliminating secondary operations such as spot welding, riveting, or fastening with threaded hardware.

**Typical Application:**

- Material thickness from 0.020(0.50) up to 0.118(3.00).
- Other limitations include material type, station size, and press tonnage capacity.

**Comments:**

- Suitable for joining materials of dissimilar type and/or thickness.
- Positive locking and locating feature for fast and accurate assembly.

**Mate HexLock™****Use:**

To provide a reliable and secure method of retaining common threaded fasteners in sheet metal.

**Typical Application:**

- Material thickness from 0.020(0.50) up to 0.118(3.00).
- Other limitations include material type, station size, and press tonnage capacity.

**Comments:**

- Suitable for hexagon nuts and hexagon headed bolts that conform to DIN933 or DIN934.

[Dimensions in Inches (mm)]

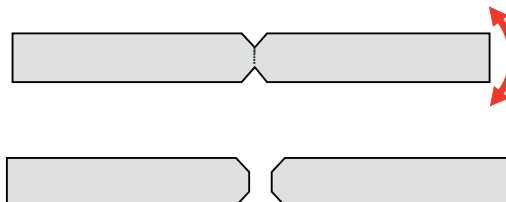
## Mate EasySnap™

### Use:

Scrapless retention system to allow fabricator to snap punched parts out of sheet metal.

### Typical Application:

- Material thickness from 0.020(0.50) up to 0.078(2.00) for mild steel and aluminium, and 0.020(0.50) up to 0.059(1.50) for stainless steel.
- Maximum length of form is 36.00(914.40) depending on material type and thickness.



### Comments:

- Reduces the need for slitting and micro joints for part retention.
- Material type and thickness must be specified at time of order.

## Mate EasyBend™

### Use:

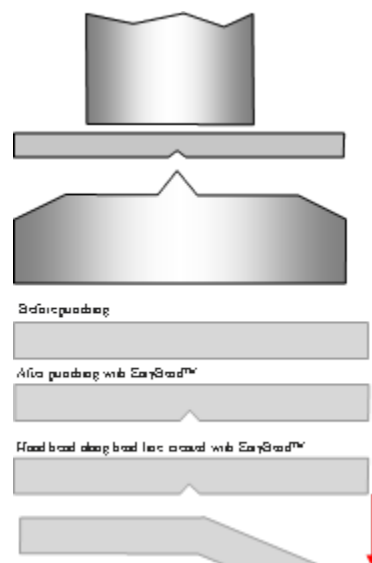
Create bend lines suitable for subsequent hand bending operations. Ideal for intricate fabricated assemblies where conventional press break forming techniques are impractical. Simply bend along the bend line for quick, accurate, and convenient forms.

### Typical Application:

- Material thickness from 0.020(0.50) up to 0.078(2.00) for mild steel and aluminium, and 0.020(0.50) up to 0.059(1.50) for stainless steel.
- Maximum length of form is 36.00(914.40) depending on material type and thickness.

### Comments:

- Eliminates secondary operations.
- Material type and thickness must be specified at time of order.



[Dimensions in Inches (mm)]

### Mate Square ShearButton™

**Use:**

Square ShearButton reduces the need for slitting and micro-joints for part retention in thicker materials. Simply snap punched components out of thicker sheet metal with a clean, smooth edge.

**Typical Application:**

- Nesting parts in a large sheet
- Square ShearButton may be used with a variety of material types, including stainless steel, aluminum, cold roll steel and more.
- Very large or heavy parts with minimal micro-joints. The Square Shearbutton tabs are much stronger than the traditional micro-joint, so fewer are needed.
- Rounded part corners where a corner micro-joint is not possible

**Comments:**

- Available in form up and form down.
- Depths and heights may be adjusted to suit the user's application.

### Mate Hybrid ThreadForm™

**Use:**

In many industries, there's a need to join two pieces of material using a threaded machine screw. If the thread pitch is greater than the material thickness, then a conventional threadform tool is a great solution. Unlike a conventional threadform tool, the Hybrid Threadform tool thins the material in the center of the form, and creates the threadform helix in just one operation.

**Typical Application:**

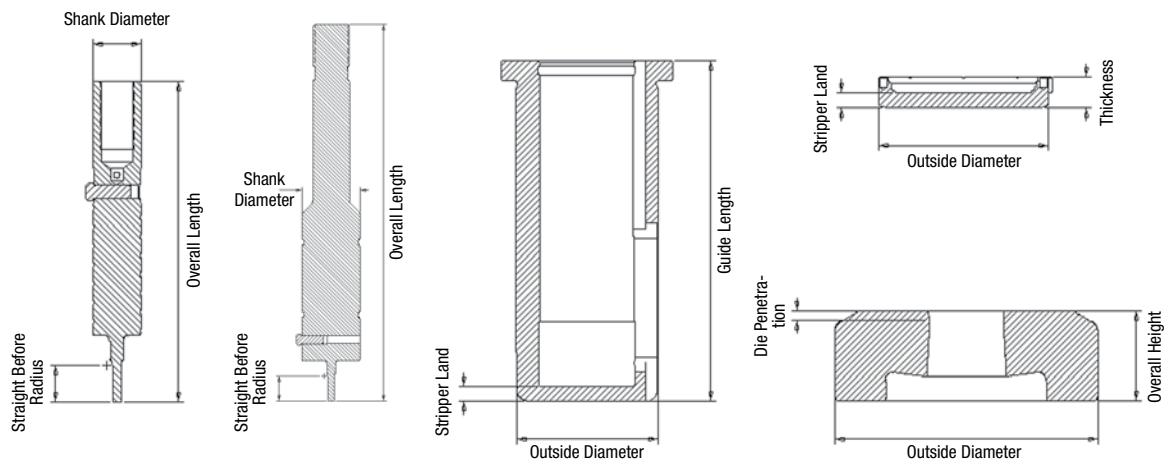
- Eliminates secondary operations
- Eliminates tapping operations
- Reduces debris in the machine caused by tapping
- Reduces component cost by eliminating any special fasteners

**Comments:**



CRITICAL DIMENSIONS

| Station                         | 1/2" A        | 1-1/4" B      | 2" C         | 3-1/2" D      | 4-1/2" E      | 6" F          |
|---------------------------------|---------------|---------------|--------------|---------------|---------------|---------------|
| Maximum Punch Diagonal          | 0.500(12.70)  | 1.250(31.75)  | 2.000(50.80) | 3.500(88.90)  | 4.500(114.30) | 6.000(152.40) |
| Ultra TEC® Punch                |               |               |              |               |               |               |
| Part Number                     | PAUA          | PAUB          | PAAC         | PAAD          | PAAE          | PAAF          |
| Overall Length                  | 4.245(107.82) | 3.957(100.51) | 3.786(96.16) | 3.313(84.15)  | 3.353(85.17)  | 3.745(95.12)  |
| Shank Diameter                  | 0.630(15.99)  | 1.250(31.75)  | 2.007(50.98) | 3.520(89.41)  | 4.520(114.81) | 6.043(153.49) |
| Straight Before Radius*         | 0.740(18.80)  | 0.740(18.80)  | 1.005(25.53) | 1.005(25.53)  | 1.043(26.49)  | 1.045(26.54)  |
| Ultra TEC® Stripper             |               |               |              |               |               |               |
| Part Number                     | S6KA          | S6KB          | S6KC         | S6KD          | S6KE          |               |
| Outside Diameter                | 0.751(19.07)  | 1.500(38.10)  | 2.249(57.12) | 3.825(97.16)  | 4.759(120.88) |               |
| Thickness                       | 0.272(6.91)   | 0.272(6.91)   | 0.394(10.01) | 0.394(10.01)  | 0.394(10.01)  |               |
| Stripper Land                   | 0.157(3.99)   | 0.157(3.99)   | 0.315(8.00)  | 0.315(8.00)   | 0.315(8.00)   |               |
| Metric (Original) Style Punch   |               |               |              |               |               |               |
| Part Number                     | PAAA          | PAAB          | PAAC         | PAAD          | PAAE          | PAAF          |
| Overall Length                  | 8.169(207.49) | 8.169(207.49) | 3.786(96.16) | 3.313(84.15)  | 3.353(85.17)  | 3.745(95.12)  |
| Shank Diameter                  | 0.630(16.00)  | 1.250(31.75)  | 2.007(50.98) | 3.520(89.41)  | 4.520(114.81) | 6.043(153.49) |
| Straight Before Radius*         | 0.664(16.87)  | 0.740(18.80)  | 1.005(25.53) | 1.005(25.53)  | 1.043(26.49)  | 1.045(26.54)  |
| Original Style Stripper         |               |               |              |               |               |               |
| Part Number                     | S6AA          | S6AB          | S6AC         | S6AD          | S6AE          | S6AF          |
| Guide/Stripper Outside Diameter | 1.020(25.91)  | 1.883(47.83)  | 2.007(50.98) | 3.520(89.41)  | 4.520(114.81) | 6.450(163.83) |
| Guide Length/Stripper Thickness | 4.448(112.98) | 4.528(115.01) | 0.394(10.01) | 0.394(10.01)  | 0.394(10.01)  | .394(10.01)   |
| Stripper Land                   | 0.197(5.00)   | 0.197(5.00)   | 0.394(10.01) | 0.394(10.01)  | 0.394(10.01)  | .394(10.01)   |
| Slug Free® Die                  |               |               |              |               |               |               |
| Part Number                     | DOAA          | DOAB          | DOAC         | DOAD          | DOAE          | DOAF          |
| Outside Diameter                | 1.000(25.40)  | 1.875(47.63)  | 3.500(88.90) | 4.938(125.43) | 6.249(158.72) | 8.265(209.93) |
| Overall Height                  | 1.187(30.15)  | 1.187(30.15)  | 1.187(30.15) | 1.187(30.15)  | 1.187(30.15)  | 1.383(35.13)  |
| Die Penetration                 | 0.118(3.00)   | 0.118(3.00)   | 0.118(3.00)  | 0.118(3.00)   | 0.118(3.00)   | .118(3.00)    |



\* The Straight Before Radius (SBR) dimension may be reduced for small diameters and narrow widths. Consult your application specialists.

[Dimensions in Inches (mm)]



## PUNCH MAINTENANCE

You can greatly extend overall punch life by sharpening whenever the edge dulls to a 0.005(0.13) radius. At this point, just a small amount of sharpening will “touch up” the cutting edge. Frequent touch up works better than waiting for the punch to become very dull. The tool lasts longer and cuts cleaner with less punching force.

Maximum amount of sharpening depends on thickness of material being punched, size of punch (length and width), and punch press station.

1. To sharpen, clamp the punch squarely in a Vee Block on the magnetic chuck of a surface grinder. Only 0.001 to 0.002 (0.03 to 0.05) should be removed in one “pass”. Repeat until tool is sharp, normally 0.005-0.010(0.13-0.25) total.
2. Use a standard vitrified bond, aluminum oxide wheel: hardness range “D” to “J”; grain size 46 to 60. A “ROSE” wheel made especially for grinding high speed steel is a good choice but not mandatory.
3. Dress the wheel using a rigid single or multi-point diamond: downfeed 0.0002-0.0008 (0.005-0.020); crossfeed quickly 20-30 in/min (508-762 mm/min).
4. Apply coolant with as much force and as close to the tool and wheel as is practical. Use a good general purpose grinding coolant used to the manufacturer’s specifications.
5. Feeds and feed rates: A, Downfeed (wheelhead), 0.001 - 0.003 (0.03-0.08); B, Crossfeed (infeed), 0.005-0.010 (0.13-0.25); for nitrided punches, 0.002-0.007(0.05-0.18); C, Traverse (sideways), 100-150 in/min (2,540-3,810 mm/min).
6. After the sharpening, lightly stone the sharp cutting edges to remove any grinding burrs and to leave a 0.001-0.002 (0.03-0.05) radius. This reduces risk of chipping.
7. Demagnetize the punch and spray on a light oil to prevent corrosion.

## DIE MAINTENANCE

As with punches, keep dies clean and watch for wear. Use the same sharpening procedures — hold die on surface grinder’s magnetic chuck; use same wheel and feed rates. Check die thickness after each sharpening and add shims as necessary.

## CONSIDERATIONS IN GRINDING

A grinding wheel’s abrasive particles, in effect, are break-away “teeth”. These teeth can be made from a variety of very hard, abrasion resistant materials, such as diamond, borazon and, most commonly, aluminum oxide.

The abrasive particles are embedded in a softer matrix material and meant to fracture loose from the matrix as cutting pressure becomes greater. Cutting pressure can increase from raising the feed rate or from dulling of abrasive particles. Pressure causes surface particles to fracture or break free from the wheel matrix and expose new sharp edges, resulting in the wheel’s sharpness.

For our purposes, in selecting a vitrified bond aluminum oxide wheel, we need only be concerned with two variables: hardness and coarseness of the wheel. Hardness refers to the bond strength of the matrix. Coarseness refers to the size and concentration of the abrasive particles (grit).

Generally speaking, harder materials require softer wheels — softer materials require harder wheels. Grinding a harder and/or more abrasive resistant material, such as hardened tool steel, dulls abrasive particles quickly. The wheel then needs increased feed forces. A softer wheel allows spent particles to break loose from the matrix more easily. The newly exposed sharp edges will cut rather than rub and tear at the workpiece. Less pressure is required and the wheel runs cooler.

Coarse wheels with large, widely spaced abrasive particles perform less cutting per revolution and allow greater “chip” clearance. The wheel stays cleaner. Friction is reduced.

Balancing hardness and coarseness results in a wheel that stays sharp and clean to optimize cutting action. It meets the grinding objective of removing material from the workpiece while expending a minimal amount of wheel energy. Wheel energy losses largely translate to workpiece heating. Workpiece heating, in turn, will result in softened and/or highly stressed tools which will not perform well. Hardened tool steels are particularly vulnerable.

It is generally desirable to use a softer “G” or “H” hardness wheel with a grit concentration/size of about forty-six.

### A-2 and S-7 STEEL

Grinding Wheel Hardness: **G-J**  
Grit: **46-60**

### M-2 and M4PM™ STEEL

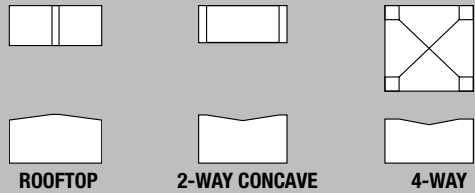
Grinding Wheel Hardness: **D-G**  
Grit: **46-60**

PUNCH AND DIE MAINTENANCE

PUNCH SHEAR RECOMMENDATIONS

| STATION  | DESCRIPTION                       | STANDARD | ALTERNATIVE   |
|----------|-----------------------------------|----------|---------------|
| 1/2" A   | Rounds and Shapes                 | None     | None          |
| 1-1/4" B | Rounds and Shapes                 | None     | None          |
| 2" C     | Rounds                            | None     | 2-Way Concave |
|          | Rectangles<br>Width ≤ 0.188(4.78) | None     | Rooftop       |
|          | Rectangles<br>Width ≤ 0.188(4.78) | None     | 2-Way Concave |
|          | Squares                           | None     | 4-Way         |
| 3-1/2" D | Rounds                            | None     | 2-Way Concave |
|          | Rectangles<br>Width ≤ 0.188(4.78) | None     | Rooftop       |
|          | Rectangles<br>Width ≤ 0.188(4.78) | None     | 2-Way Concave |
|          | Squares                           | None     | 4-Way         |
| 4-1/2" E | Rounds                            | Rooftop  | 2-Way Concave |
|          | Rectangles<br>Width ≤ 0.188(4.78) | Rooftop  | Rooftop       |
|          | Rectangles<br>Width ≤ 0.188(4.78) | Rooftop  | 2-Way Concave |
|          | Squares                           | Rooftop  | 4-Way         |

ALTERNATIVE SHEARS

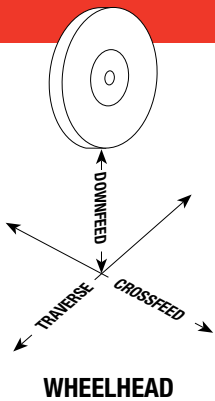


FEED RATES PER PASS

**Downfeed:**  
0.001-0.003(0.03-0.08)

**Crossfeed:**  
0.010(0.25)

**Traverse:**  
100-150 in/min.  
(2.50-3.80 m/min.)



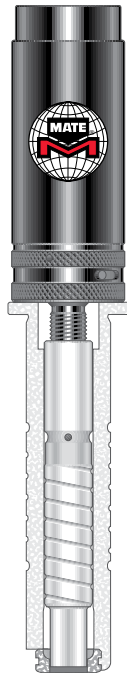
FIXING SHARPENING PROBLEMS

| PROBLEM:                                       | CAUSE:                         | CURE:   |
|--|--------------------------------|---|
| Discoloration** and/or surface cracks          | Insufficient coolant           | Increase or redirect flow.  |
|  | Improper wheel                 | Use coarser grain, softer grade grinding wheel.   |
|  | Improper dress                 | Drop wheelhead 0.0002-0.0004 (0.005-0.010) and redress. Move crossfeed approx. 50 in/min. (1.25 m/min.) |
| Harsh cutting sound and/or poor surface finish | Excessive stock removal        | Less downfeed; lower crossfeed rate   |
|  | Improper wheel                 | Use coarser grain, softer grade grinding wheel.   |
|  | Improper dress or glazed wheel | Redress wheel, break glaze on wheel surface   |

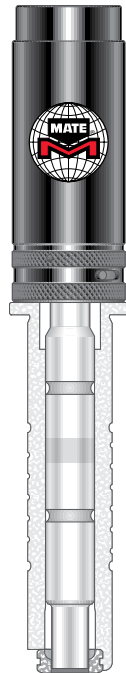
\*\*Dark discoloration indicates damage not necessarily limited to the tool surface. Removal of burned surface will not rectify damage. Recommend replacement of the tool.

[Dimensions in Inches (mm)]

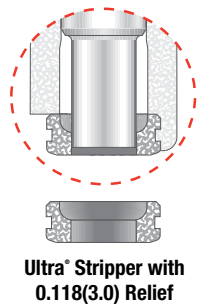
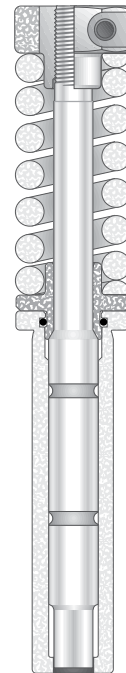
1/2" A Station Ultra TEC®  
with Ultra® Punch



1/2" A Station Ultra TEC®  
with Original Style Punch

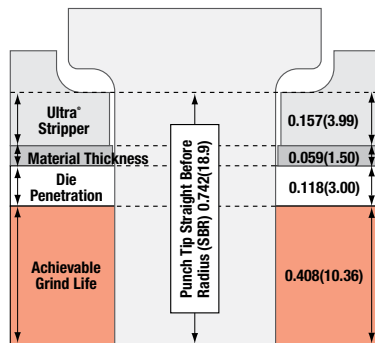


1/2" A Station  
Original Style

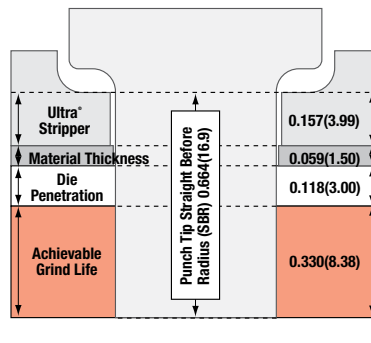


## VALUE COMPARISON - 0.408(10.36) grind life when used with 0.059(1.50) material

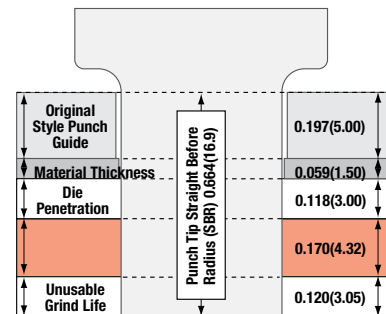
Mate Ultra TEC® System  
w/ Ultra® Punch



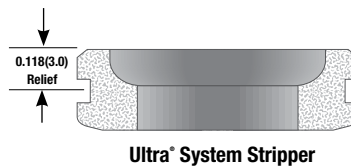
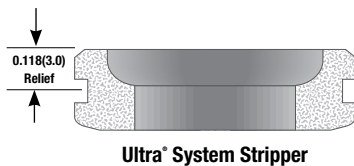
Mate Ultra TEC® System  
w/ Original Style Punch



Original Style

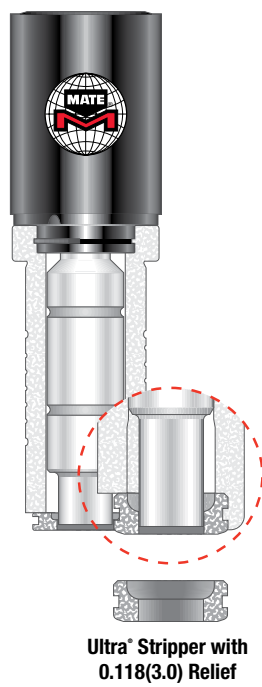


\*Limited by punch head position

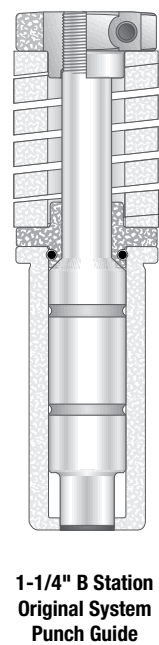


[Dimensions in Inches (mm)]

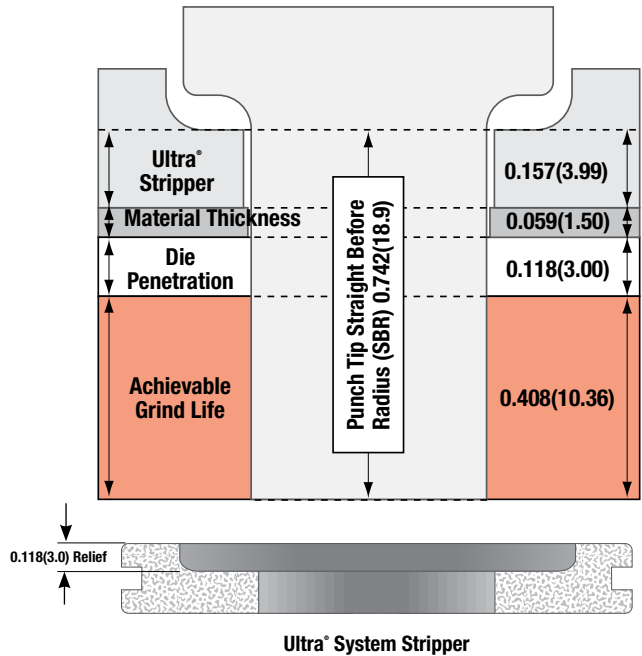
1-1/4" B Station  
Ultra®



1-1/4" B Station  
Original Style

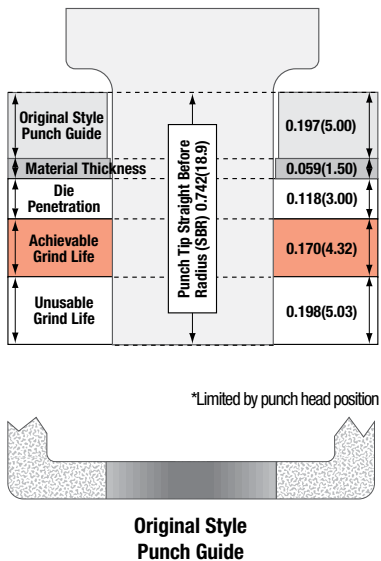


Mate Ultra® System



**VALUE COMPARISON** - 0.408(10.36) grind life when used with 0.059(1.50) material

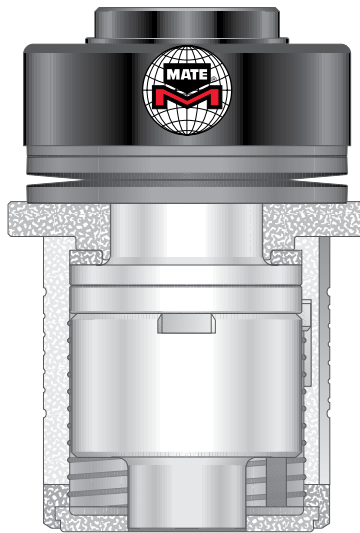
Original Style



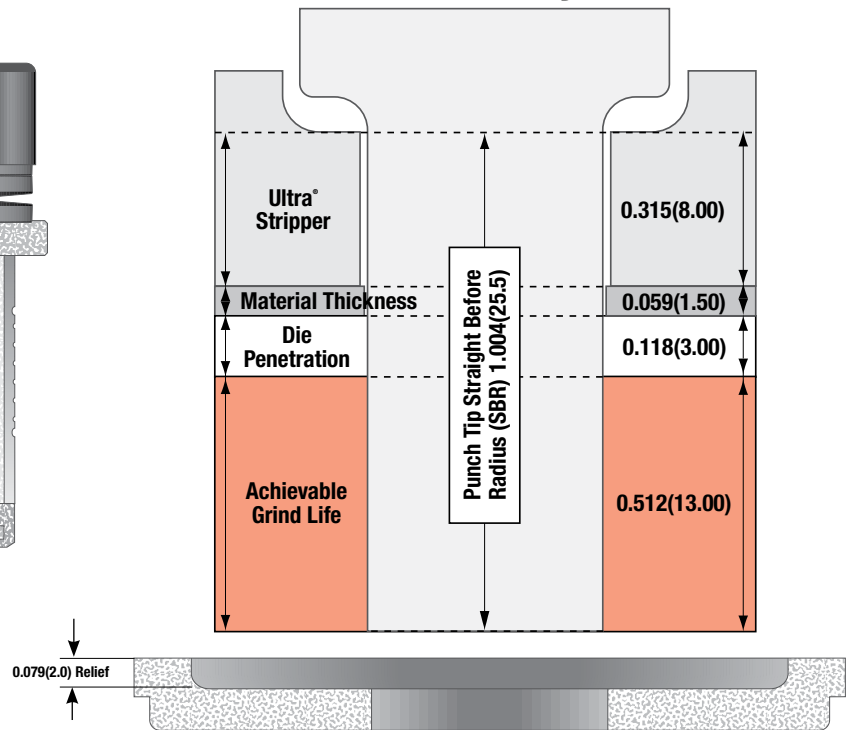
[Dimensions in Inches (mm)]



4-1/2" D Station Ultra®

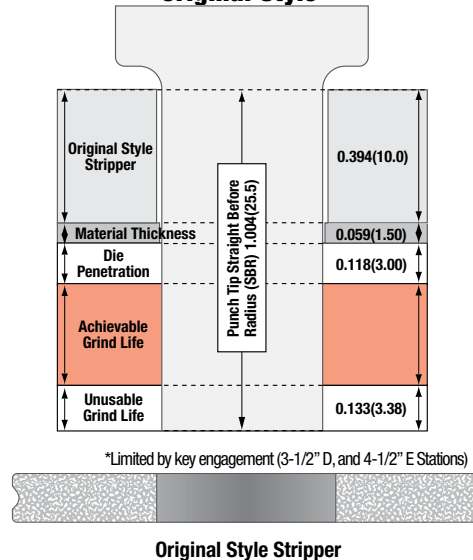


Mate Ultra® System



**VALUE COMPARISON - 0.512(13.00) grind life when used with 0.059(1.50) material**

Original Style

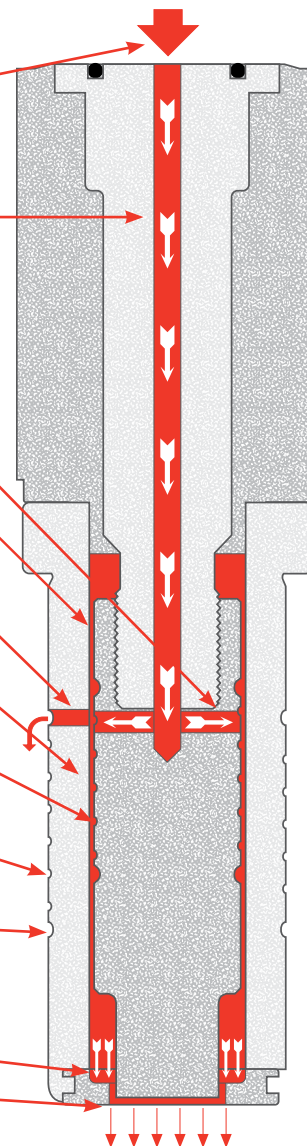


[Dimensions in Inches (mm)]



Machines equipped with tool lubrication systems introduce a lubrication fluid (oil, or an oil/air mixture) into the top of the tooling system. This diagram shows the method of transporting this fluid throughout the Ultra® tooling system in the ½" A (not show) and 1-¼" B station (as shown) system.

1. The lubrication fluid – is introduced at the top of the tool by the machine mechanism.
2. It travels through the center of the assembly.
3. It flows through four fluid transportation holes in the punch. Two holes have been shown here. The four holes are at 90 degrees from each other.
4. The lubrication fluid reaches the interior wall of the Ultra guide.
5. The lubrication fluid also reaches the exterior of the guide.
6. There are internal keyways (Three for ½ A, Five for 1-¼ B-Station) in the Ultra guide for punch angle settings. One keyway will be obstructed with the key of the punch. The lubrication fluid moves through the remaining four unobstructed keyways to the stripper pooling area.
7. The punch spiral grooves evenly distribute the lubrication fluid around the entire interior of the guide.
8. The exterior spiral grooves evenly distribute the lubrication fluid around the entire guide between the guide and the turret bore.
9. The exterior spiral grooves do not extend beyond the turret bore. This keeps the lubrication on the contact surfaces and prevents the fluid from draining onto the work surface.
10. Stripper pooling area.
11. For Ultra ABS® Only:  
Fluid is expelled through the small reliefs in the stripper next to the punch.

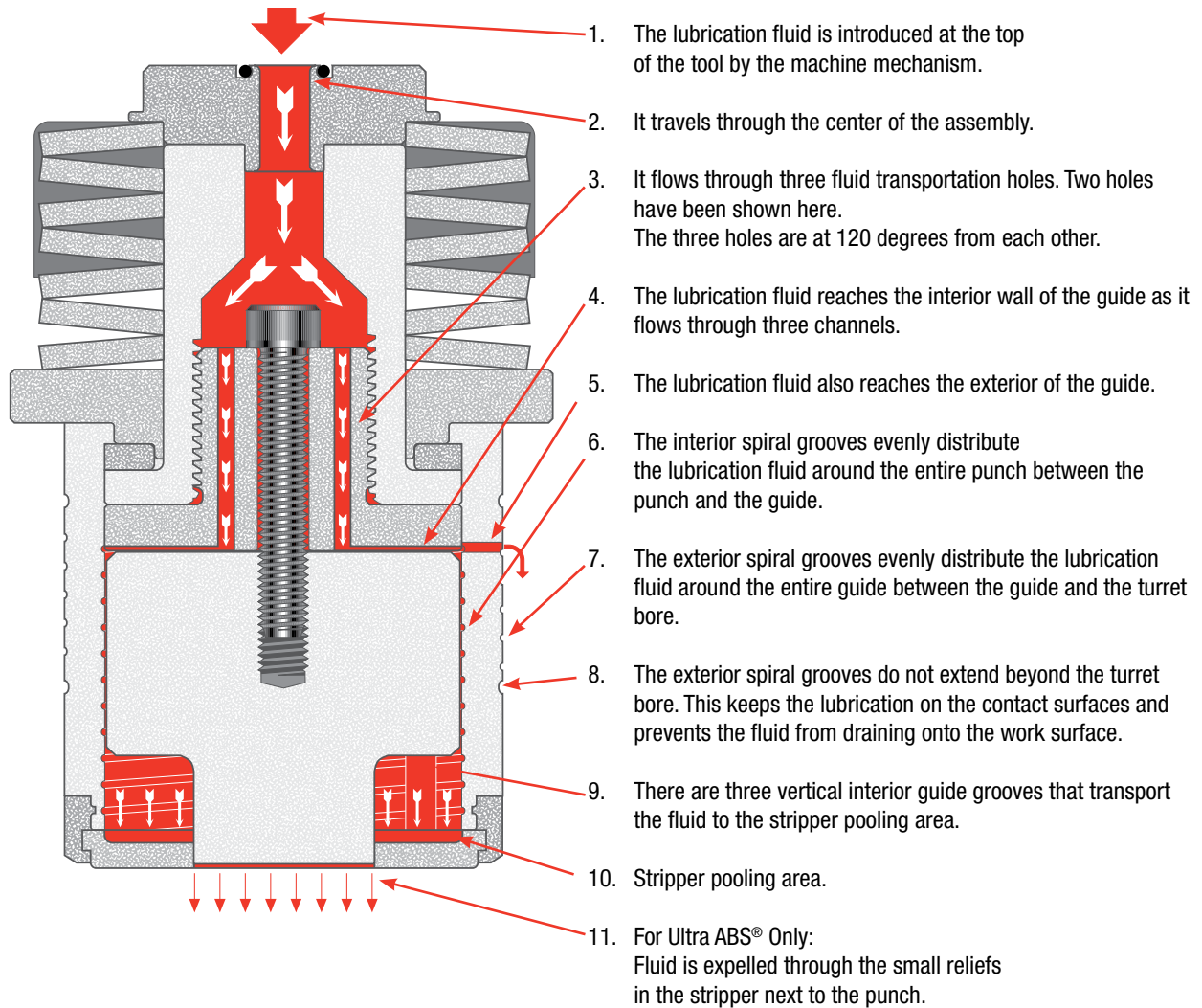


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[Dimensions in Inches (mm)]



Machines equipped with tool lubrication systems introduce a lubrication fluid (oil, or an oil/air mixture) into the top of a tooling system. This diagram shows the method of transporting this mixture throughout the Ultra® tooling system in the 2" C, 3-1/2" D (as shown), and the 4-1/2" E station system.



Ultra ABS® is licensed under U.S. Patent No. 4,977,804 and corresponding foreign patents and patent applications, and authorized for use only on punch press machines manufactured by, for, or under license from Amada Company, Ltd.

**WHAT IS MATE'S SUPERMAX™ COATING?** Mate SuperMax™ is a **proprietary** next generation coating applied using the latest nano-layer technology. Specifically formulated for punch press tooling, SuperMax's harder, denser film provides a lubricious coating greatly increasing wear resistance and lowering friction coefficients about 20%. Lower friction means less heat build-up, less galling and longer tool life. SuperMax is particularly good for adhesive wear tooling applications. The lubricity is also beneficial when punching sharp cornered shapes with a 90 degree or smaller angle.

In customer testing, SuperMax outperforms currently available premium coatings by 2 to 8 times, depending on the application. SuperMax can be applied to M4PM™, M2, and Durasteel™ punches.

#### WHAT IS MAXIMA™ COATING?

Maxima is a multilayer Zirconium Titanium Nitride coating that is hard, wear resistant, and lubricious. It acts as a barrier between the punch and the sheet metal being punched and, because of its exceptional lubricity, greatly improves stripping. Maxima is an extremely hard, wear resistant, slippery material which reduces the friction that occurs during the stripping portion of the punching cycle, it is particularly good for adhesive wear tooling applications. Less friction means less heat build up, less galling and longer tool life. The lubricity is also beneficial when punching sharp cornered shapes with a 90 degree or smaller angle.

In real life applications, Maxima has increased tool life by a factor of 2 to 10 times, keeping tools in production longer with increased up time. Maxima can be applied to M-2, M4PM™, and Durasteel™.

#### WHAT IS NITRIDE TREATMENT?

Nitride is an optional heat treatment for abrasive and adhesive wear environments when punching thin materials. It is a surface treatment which becomes an integral component of the structure of the material itself, therefore extending tool life.

Punches with Nitride Treatment are recommended for punching abrasive materials such as fiberglass or materials that cause galling such as stainless steel, galvanized steel, and aluminum. It is also recommended for high speed punching (see below for nibbling limitations). Nitride can be applied to M-2 and M4PM™ tool steel.

### APPLICATION RECOMMENDATIONS:

| COATING OR TREATMENT | 3000 & 5000 Series Aluminum | Galvanized Steel | Stainless Steel | Stainless Steel Under 14 gauge | Cold Rolled Steel | Vinyl Coated Materials | Pre-painted Materials Under 16 gauge | Fiberglass |
|----------------------|-----------------------------|------------------|-----------------|--------------------------------|-------------------|------------------------|--------------------------------------|------------|
| SuperMax™            | X                           | X                | X               | X                              | X                 | X                      | X                                    | X          |
| Maxima™              | X                           | X                | X               | X                              |                   | X                      | X                                    |            |
| Nitride              | X                           |                  |                 | X                              | X                 |                        | X                                    | X          |

| SHAPE     | MINIMUM PUNCH SIZE FOR SUPERMAX™ COATING   | MINIMUM PUNCH SIZE FOR MAXIMA™ COATING   | MINIMUM PUNCH SIZE FOR NITRIDE TREATMENT | MINIMUM PUNCH SIZE FOR NITRIDE WHEN NIBBLING |
|-----------|--|--|--|--|
| Round     | Minimum diameter = 0.098(2.50)   | Minimum diameter = 0.098(2.50)   | Minimum diameter = 0.158(4.01)           | Minimum diameter = 0.500(12.70)              |
| Rectangle | If length is > 0.250(6.35)<br>The minimum width is 0.060(1.50)<br>If length is < 0.250(6.35)<br>The minimum width is 0.098(2.50) | If length is > 0.250(6.35)<br>The minimum width is 0.060(1.50)<br>If length is < 0.250(6.35)<br>The minimum width is 0.098(2.50) | Minimum width = 0.158(4.01)              | Minimum width = 0.500(12.70)                 |
| Oval      | If length is > 0.250(6.35)<br>The minimum width is 0.060(1.50)<br>If length is < 0.250(6.35)<br>The minimum width is 0.098(2.50) | If length is > 0.250(6.35)<br>The minimum width is 0.060(1.50)<br>If length is < 0.250(6.35)<br>The minimum width is 0.098(2.50) | Minimum width = 0.158(4.01)              | Minimum width = 0.500(12.70)                 |
| Square    | Minimum width = 0.098(2.50)  | Minimum width = 0.098(2.50)  | Minimum width = 0.158(4.01)              | Minimum width = 0.500(12.70)                 |
| Others    | Consult a Mate application specialist  |  |  |  |



\* Mate's SuperMax tooling can be identified by its subtle matte finish and a protective green tip when shipped.



\*\* If you require a smaller minimum punch size, contact a Mate Application Specialist

[Dimensions in Inches (mm)]

M4PM™ is a high speed, particle metallurgy tool steel designed for use in high performance tooling systems.

A combination of the chemical composition of M4, the particle metallurgy manufacturing process, and the triple temper heat treatment process, produces M4PM: the world's finest tool steel for use in punching tools.

M4PM is a very homogeneous, high quality tool steel which has many advantages when compared to alternative tool steels commonly available. These advantages include:

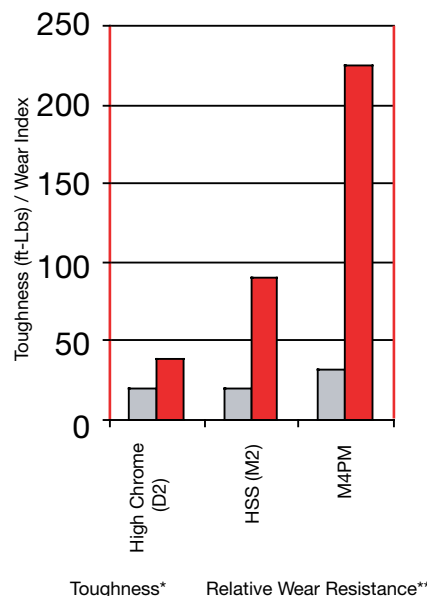
**Superior Wear Resistance** – 100% better wearing, M4PM offers superior resistance to adhesive- and abrasive-wear to maximize the interval between regrinds.

- More uniform distribution of smaller carbides—results in improved ductility (adhesive-wear) while still providing abrasive-wear resistant carbides over the entire surface of the material.
- 100% more Vanadium carbides—harder wearing for greater resistance to abrasive-wear.
- Increased Tungsten carbides—harder wearing and offer better red hardness; increased resistance to high temperatures which may anneal or damage the material.
- Higher hardenability—increased alloy content results in higher effective hardness for better wear resistance.

**Increased Toughness** – the molecular structure of M4PM is 50% tougher than conventional tool steels in impact strength tests.

- Triple temper heat treatment process—ensures full conversion of the material matrix. Results in fully tempered martensite and reduced internal stress, together with better dimensional stability.
- More uniform distribution of smaller carbides—offsets the effects of increased alloy content. Results in a more “interlocked” material matrix for significantly reduced tool breakage and edge chipping. See micrograph.

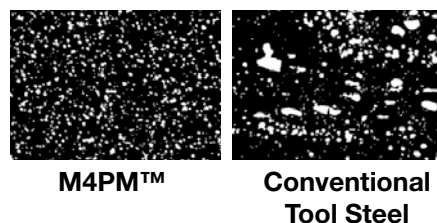
**Better Value** – customer trials have shown that tools manufactured in M4PM last 100% longer between regrinds than tools manufactured using conventional High Speed Steel. By increasing the interval between regrinds, the tooling lasts longer and punches many more holes before needing to be replaced.



| International Material Standards |                 |          |        |
|----------------------------------|-----------------|----------|--------|
|                                  | D2              | M2       | M4PM   |
| JIS                              | SKD 11          | SKH 51   | SKH 54 |
| WNr                              | 1.2379          | 1.3343   | none   |
| DIN                              | X155 CrVMo 12-1 | HS 6-5-2 | none   |

| M4PM Chemical Composition |       |
|---------------------------|-------|
| Carbon                    | 1.42% |
| Chromium                  | 4.00% |
| Vanadium                  | 4.00% |
| Tungsten                  | 5.50% |
| Molybdenum                | 5.25% |

Micrograph shows that the particle metallurgy process produces a very homogeneous, high quality tool steel with superior wear resistance, toughness and dimensional stability.



\*Toughness: Charpy C-Notch impact strength test.

\*\*Relative Wear Resistance: 10x Cross cylinder adhesive wear test.  
Based upon steel manufacturers data.

**General**

Radius Corners  
 Non-Standard Straight Before Radius (SBR) Dimension  
 Special Angle Settings  
 Optional Shear (Limited Options)

**Small Diameter Round Tools**

Diameter 0.031(0.79) to 0.061(1.55)  
 Diameter 0.062(1.56) to 0.092(2.34)

**Narrow Width Shaped Tools**

Widths under 0.079(2.00)

**Station Jumper**

1-1/4" B Station - if diagonal dimension is <0.500(12.70)  
 2" C Station - if diagonal dimension is <1.250(31.70)  
 3-1/2" D Station - if diagonal dimension is <2.000(50.80)  
 4-1/2" E Station - if diagonal dimension is <3.500(88.90)  
 6" F Station - if diagonal dimension is <4.500(114.30)

**SuperMax™ Coating**

1/2" A Station  
 1-1/4" B Station  
 2" C Station  
 3-1/2" D Station  
 4-1/2" E Station  
 6" F Station  
 Slitting Punch Insert

**Maxima™ Coating / Nitride Treatment**

1/2" A Station  
 1-1/4" B Station  
 2" C Station  
 3-1/2" D Station  
 4-1/2" E Station  
 6" F Station  
 Slitting Punch Insert

**Slug Free Light™ Die Geometry - See page 9**

1/2" A Station  
 1-1/4" B Station  
 2" C Station  
 3-1/2" D Station  
 4-1/2" E Station

**M4PM™ Tool Steel**

Ultra TEC® — 1/2" A Station  
 Ultra TEC® — 1-1/4" B Station  
 MXC™ — 1/2" A Station  
 MXC™ — 1-1/4" B Station

[Dimensions in Inches (mm)]

| STATION | CONFIGURATION |
|---------|---------------|
|---------|---------------|

**ULTRA TEC®**

|          |   |
|----------|---|
| 1/2" A   | Canister and guide with Ultra® punch and stripper |
| 1-1/4" B | Canister and guide with Ultra® punch and stripper |
| 2" C     | Original punch and Ultra® stripper                |
| 3-1/2" D | Original punch and Ultra® stripper                |
| 4-1/2" E | Original punch and Ultra® stripper                |

**ULTRA® QCT™**

|          |  |
|----------|--|
| 1/2" A   | Canister and guide with QCT™ punch driver and insert, and Ultra stripper |
| 1-1/4" B | Canister and guide with QCT™ punch driver and insert, and Ultra stripper |

**ULTRA TEC® METRIC**

|          |   |
|----------|---|
| 1/2" A   | Canister and guide with metric punch and stripper |
| 1-1/4" B | Canister and guide with metric punch and stripper |

**ULTRA TEC® FULLY GUIDED**

|          |  |
|----------|--|
| 1-1/4" B | Canister and guide with Ultra® punch and guided stripper |
| 2" C     | Original punch and guided stripper                       |
| 3-1/2" D | Original punch and guided stripper                       |
| 4-1/2" E | Original punch and guided stripper                       |

**ULTRA TEC® FULLY GUIDED CLAMP CLEARING**

|          |                                       |
|----------|---------------------------------------|
| 3-1/2" D | Punch insert, clamp clearing stripper |
| 4-1/2" E | Punch insert, clamp clearing stripper |

**ULTRA XT™**

|          |  |
|----------|--|
| 1/2" A   | Canister and guide with Ultra® punch and Ultra® stripper |
| 1-1/4" B | Canister and guide with Ultra® punch and Ultra® stripper |
| 2" C     | Original punch and original stripper                     |
| 3-1/2" D | Original punch and original stripper                     |
| 4-1/2" E | Original punch and original stripper                     |
| 6" F     | Original punch and original stripper                     |

**ULTRA XT™ QCT™**

|          |  |
|----------|--|
| 1/2" A   | Canister and guide with QCT™ punch driver and insert, and Ultra stripper |
| 1-1/4" B | Canister and guide with QCT™ punch driver and insert, and Ultra stripper |

**ULTRA XT™ METRIC**

|          |  |
|----------|--|
| 1/2" A   | Canister and guide with metric punch and Ultra® stripper |
| 1-1/4" B | Canister and guide with metric punch and Ultra® stripper |

**RAPIDSET™ OS**

|          |   |
|----------|---|
| 1/2" A   | Canister and guide with Original punch and stripper |
| 1-1/4" B | Canister and guide with Original punch and stripper |

**RAPIDSET™ AMX™**

|          |   |
|----------|---|
| 1/2" A   | Canister and guide with AMX™ punch and stripper |
| 1-1/4" B | Canister and guide with AMX™ punch and stripper |

**ORIGINAL STYLE THICK TURRET**

|          |   |
|----------|---|
| 1/2" A   | Upper assembly, including Original punch and stripper |
| 1-1/4" B | Upper assembly, including Original punch and stripper |
| 2" C     | Original punch and original stripper                  |
| 3-1/2" D | Original punch and original stripper                  |
| 4-1/2" E | Original punch and original stripper                  |
| 6" F     | Original punch and original stripper                  |

**AMX™**

|          |   |
|----------|---|
| 1/2" A   | Upper assembly, including AMX™ punch and stripper |
| 1-1/4" B | Upper assembly, including AMX™ punch and stripper |
| 2" C     | AMX™ punch and stripper                           |
| 3-1/2" D | AMX™ punch and stripper                           |
| 4-1/2" E | AMX™ punch and stripper                           |

[Dimensions in Inches (mm)]

## THICK TURRET COMPATIBILITY CHART

|                  | Tool Style                        | Mate Part Number | Ultra TEC® | Ultra XT™ | Ultra ABS® | Mate OS | Ultra ABS 14mm Bolt Guide Assembly | RapidSet™ | Ultra MT, UMT and IMT 3 or 8 Station Multi Tools | HP™ & HP2™ | HP™ WLS & HP2™ WLS® | HP™ ABS & HP2™ ABS | Wilson Inch Style | Amada Standard | Amada ABS | Amada Z-Standard | Amada Z-ABS | Amada NEX Standard | Amada NEX ABS | Amada GT7 | Amada Alpha | Wilson Adjustable Length HP ABS 3 Station 35307* | Wilson Adjustable MT8Ri For PrimaPower 45292 | Wilson Adjustable MT3Ri For PrimaPower 45293 | Wilson Non-Adjust Multi Tool MT3B | Wilson Non-Adjust Multi Tool MT18 45276 | Wilson Nissimro Diversitech 10 Non-Adjust Multi Tool MT18 38022 | Wilson Rotational - Indexable MTX3Ri & MTX8Ri |
|------------------|-----------------------------------|------------------|------------|-----------|------------|---------|------------------------------------|-----------|--|------------|---------------------|--------------------|-------------------|----------------|-----------|------------------|-------------|--------------------|---------------|-----------|-------------|--|--|--|-----------------------------------|---|---|---|
| 1/2" A Station   |                                   |                  |            |           |            |         |                                    |           |  |            |                     |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
| Punch            | Ultra™ QCT™                       | MATE02404        | •          | •         |            |         |                                    |           | •  |            |                     |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | Ultra TEC® Punch                  | PAUA             | •          | •         |            |         |                                    |           | •  |            |                     |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | Metric (Original) Punch           | PAAA             | •6         | •6        |            | •       |                                    | •         |  |            |                     |                    |                   | •              |           |                  |             | •                  |               |           |             |  |  |  |                                   |   |   |   |
|                  | Ultra ABS® Punch                  | PAYA             |            |           | •          |         |                                    |           | •  |            |                     |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | Inch Style                        | PAJA             |            |           |            |         |                                    |           |  |            |                     |                    | •                 |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | AMX™                              | PMXA             | •          | •14       | •          | •       |                                    | •         |  |            |                     |                    |                   |                | •         |                  | •           |                    | •             |           |             |  |  |  |                                   |   |   | •   |
|                  | MXC™ Std                          | PXCA             |            |           |            |         |                                    |           |  | •          |                     |                    |                   |                |           |                  |             |                    |               | •         |             |  |  |  |                                   |   |   | •   |
|                  | MXC™ ABS                          | PLCA             |            |           |            |         |                                    |           |  |            | •                   | •                  |                   |                |           |                  |             |                    |               | •         |             |  |  |  |                                   |   |   | •   |
| Stripper         | Ultra TEC®                        | S6KA             | •          | •         |            |         |                                    |           | •  |            |                     |                    |                   |                |           |                  |             |                    | •             |           |             |  |  |  |                                   |   |   |   |
|                  | Original Style (Stripper Guide)   | S6AA             |            |           |            | •       |                                    | •         |  |            |                     |                    |                   | •              |           |                  |             | •                  |               |           |             |  |  |  |                                   |   |   |   |
|                  | Ultra ABS®                        | S6YA             |            |           | •          |         |                                    |           | •  |            |                     |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | AMX™ (Stripper Guide)             | SMXA             |            |           |            |         |                                    | •         |  |            |                     |                    |                   | •4             | •         | •4               | •           | •4                 | •             | •         |             |  |  |  |                                   |   |   |   |
|                  | MXC™                              | SXCA             |            |           |            |         |                                    |           |  | •          | •                   | •                  |                   |                |           |                  |             |                    |               |           | •           |  |  |  |                                   |   |   | •   |
| Die              | Slug Free® Die                    | DOAA             | •          | •         | •          | •       |                                    | •         | •  | •          | •                   | •                  | •                 | •              | •         | •                | •           | •                  | •             | •         | •           |  |  |  |                                   |   |   | •   |
|                  | Standard Die                      | DOKA             | •          | •         | •          | •       |                                    | •         | •  | •          | •                   | •                  | •                 | •              | •         | •                | •           | •                  | •             | •         | •           |  |  |  |                                   |   |   | •   |
| Clip             | For Metric (Original) Round Punch | AOVAASAC         | •5         | •5        | •5         |         |                                    |           |  |            |                     |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
| 1-1/4" B Station |                                   |                  |            |           |            |         |                                    |           |  |            |                     |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
| Punch            | Ultra™ QCT™                       | MATE02401        | •          | •         |            |         |                                    |           | •  |            |                     |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | Ultra TEC® Punch                  | PAUB             | •          | •         |            |         |                                    |           | •  | •1         |                     |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | Metric (Original) Punch           | PAAB             | •6         | •6        |            | •       |                                    | •         |  |            |                     |                    |                   | •              |           |                  |             | •                  |               |           |             |  |  |  |                                   |   |   |   |
|                  | Ultra ABS® Punch                  | PAYB             |            |           | •          |         |                                    |           | •  | •1         |                     |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | Inch Style                        | PAJB             | •9         | •9        |            |         |                                    |           |  |            |                     |                    | •                 |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | AMX™                              | PMXB             | •          | •14       | •          | •       |                                    | •         |  |            |                     |                    |                   |                |           |                  | •           |                    | •             |           |             |  |  |  |                                   |   |   | •   |
|                  | MXC™ Std                          | PXCB             | •13        | •13       | •13        |         |                                    |           | •13  | •          |                     |                    |                   |                |           |                  |             |                    |               |           | •           |  |  |  |                                   |   |   | •   |
|                  | MXC™ ABS                          | PLCB             | •13        |           | •13        |         |                                    |           |  |            | •                   | •                  |                   |                |           |                  |             |                    |               |           | •           |  | •  |  | •                                 |   |   | •   |
| Stripper         | Ultra TEC®                        | S6KB             | •          | •         |            |         |                                    |           | •  | •          | •                   | •                  |                   |                |           |                  |             |                    | •             |           |             |  |  |  |                                   |   |   |   |
|                  | Original Style (Stripper Guide)   | S6AB             |            |           |            | •       |                                    | •         |  |            |                     |                    |                   | •              |           |                  |             | •                  |               |           |             |  |  |  |                                   |   |   |   |
|                  | Ultra ABS®                        | S6YB             |            |           | •          |         |                                    |           | •  | •          | •                   |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | AMX™ (Stripper Guide)             | SMXB             |            |           |            |         |                                    | •         |  |            |                     |                    |                   | •4             | •         | •4               | •           | •4                 | •             | •         |             |  |  |  |                                   |   |   |   |
|                  | MXC™                              | SXCB             | •17        | •17       |            |         |                                    |           | •16  | •          | •                   | •                  |                   |                |           |                  |             |                    |               |           | •           |  |  |  | •                                 |   |   | •   |
| Die              | Slug Free® Die                    | DOAB             | •          | •         | •          | •       |                                    | •         | •  | •          | •                   | •                  | •                 | •              | •         | •                | •           | •                  | •             | •         | •           |  |  |  |                                   |   |   | •   |
|                  | NON-Slug Free® Die                | DOKB             | •          | •         | •          | •       |                                    | •         | •  | •          | •                   | •                  | •                 | •              | •         | •                | •           | •                  | •             | •         | •           |  |  |  |                                   |   |   | •   |
| Clip             | For Metric (Original) Round Punch | AOVBASAC         | •5         | •5        | •5         |         |                                    |           |  |            |                     |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | HP Round Punch Retaining Ring     | AOVBWBAC         | •10        | •10       | •10        |         |                                    |           |  |            |                     |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | HP Round Punch Wire Hook          | AOVBWSAC         | •10        | •10       | •10        |         |                                    |           |  |            |                     |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | For Wilson HP Canister            | AOVBWGAC         |            |           |            |         |                                    |           |  | •11        | •11                 | •11                |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | For Wilson HP2 Canister           | AOVBWKAC         |            |           |            |         |                                    |           |  | •12        | •12                 | •12                |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |
|                  | For Wilson HP Double D Canister   | AOVBWHAC         |            |           |            |         |                                    |           |  | •11        | •11                 | •11                |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |   |   |

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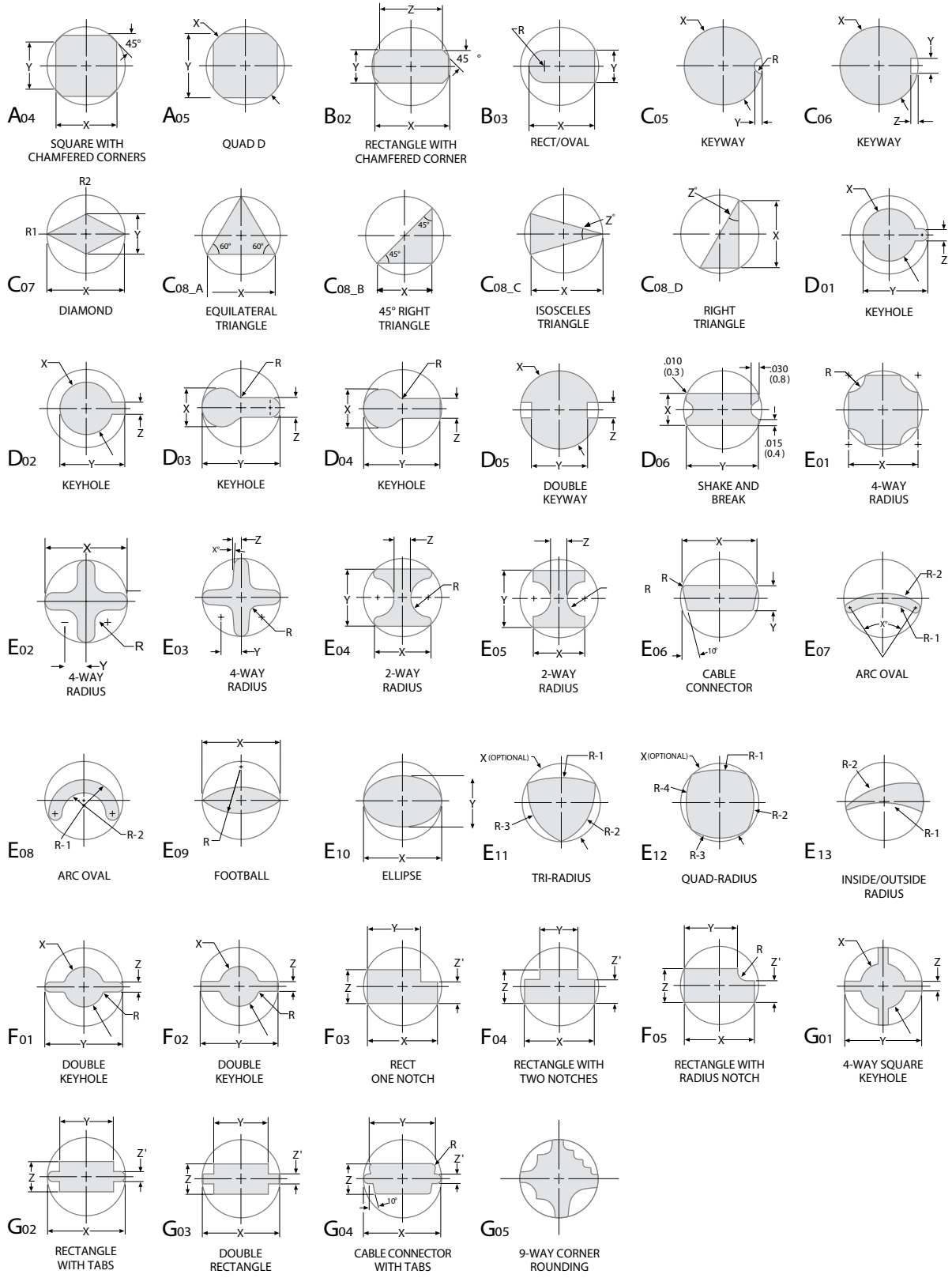
|  | Tool Style                       | Mate Part Number | Ultra TEC® | Ultra XT™ | Ultra ABS® | Mate OS | Ultra ABS 14mm Bolt Guide Assembly | Ultra MT, UMT and IMT 3 or 8 Station Multi Tools | HP™ & HP2™ | HP™ WLS® & HP2™ WLS® | HP™ ABS & HP2™ ABS | Wilson Inch Style | Amada Standard | Amada ABS | Amada Z-Standard | Amada Z-ABS | Amada NEX Standard | Amada NEX ABS | Amada GT7 | Amada Alpha | Wilson Adjustable Length HP ABS 3 Station 39307* | Wilson Adjustable MT8RI For PrimaPower 45292 | Wilson Adjustable MT3RI For PrimaPower 45293 | Wilson Non-Adjust Multi Tool MT3B | Wilson Non-Adjust Multi Tool MT18 45276 | Wilson Nissinbo Non-Adjust Multi Tool MT18 38022 |
|--|----------------------------------|------------------|------------|-----------|------------|---------|------------------------------------|--|------------|----------------------|--------------------|-------------------|----------------|-----------|------------------|-------------|--------------------|---------------|-----------|-------------|--|--|--|-----------------------------------|---|--|
| <b>2" C, 3-1/2" D, and 4-1/2" E Stations</b> |                                  |                  |            |           |            |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |  |
| <b>Punch</b>                                 | Original Style (M12 bolt)        | PAA              | •          | •         | •          | •       | •8                                 |  |            |                      |                    |                   | •              |           | •2               |             |                    |               |           | •2          |  |  |  |                                   |   |  |
|  | Inch Style (1/2-13 bolt)         | PAJ              |            |           | •          |         |                                    |  |            |                      |                    | •                 |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |  |
|  | AMX™ (M14 Threads)               | PMX              |            |           |            |         | •                                  |  |            |                      |                    |                   |                |           |                  | •           |                    |               |           | •7          |  |  |  |                                   |   |  |
|  | AMX™ Slitting Retainer D Station | MATE001988       |            |           |            |         | •                                  |  |            |                      |                    |                   |                | •         |                  | •           |                    |               |           | •7          |  |  |  |                                   |   |  |
|  | AMX™ Slitting Retainer E Station | MATE001990       |            |           |            |         | •                                  |  |            |                      |                    |                   |                | •         |                  | •           |                    |               |           | •7          |  |  |  |                                   |   |  |
|  | MXC™                             | PXC              | •15        | •15       | •15        |         |                                    |  | •          | •                    |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |  |
| <b>Stripper</b>                              | Ultra TEC®                       | S6K              | •          |           |            |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |  |
|  | Original Style (Stripper Guide)  | S6A              |            | •         |            | •       |                                    |  |            |                      |                    |                   | •              |           | •3               |             |                    |               |           | •3          |  |  |  |                                   |   |  |
|  | Ultra ABS®                       | S6Y              |            |           | •          |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |  |
|  | AMX™ (Stripper Guide)            | SMX              |            |           |            |         |                                    |  |            |                      |                    |                   |                | •         |                  | •           |                    |               |           | •           |  |  |  |                                   |   |  |
|  | MXC™                             | SXC              |            | •         |            | •       |                                    |  | •          | •                    | •                  |                   |                |           |                  |             |                    |               |           | •           | •  |  |  |                                   |   |  |
| <b>Die</b>                                   | Slug Free® Die                   | D0A              | •          | •         | •          | •       | •                                  |  | •          | •                    | •                  | •                 | •              | •         | •                | •           |                    |               |           | •           | •  |  |  |                                   |   |  |
|  | Standard Die                     | D0K              | •          | •         | •          | •       | •                                  |  | •          | •                    | •                  | •                 | •              | •         | •                | •           |                    |               |           | •           | •  |  |  |                                   |   |  |
| <b>Ultra M14 Bolt Conversion Package</b>     | C Station                        | MATE00651        | •          | •         | •          |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |  |
|  | D Station                        | MATE00652        | •          | •         | •          |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |  |
|  | E Station                        | MATE00653        | •          | •         | •          |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |  |
| <b>MTG Multi Tool</b>                        |                                  |                  |            |           |            |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   |   |  |
| <b>Punch</b>                                 | 3 Station                        | PMSQ             |            |           |            |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  | •                                 |   |  |
|  | Long 8 Station                   | PNSR             |            |           |            |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             |  |  |  |                                   | •                                       |  |
| <b>Stripper</b>                              | 3 Station                        | SMSQ             |            |           |            |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             | •  |  | •  | •                                 |   |  |
|  | Long 8 Station                   | SNSR             |            |           |            |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             |  | •  |  |                                   | •                                       | •  |
| <b>Die</b>                                   | 3 Station Slug Free              | DESQ             |            |           |            |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             | •  |  | •  | •                                 |   |  |
|  | 3 Station Non-Slug Free          | DFSQ             |            |           |            |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             | •  |  | •  | •                                 |   |  |
|  | Long 8 Station Slug Free         | DGSR             |            |           |            |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             |  | •  |  |                                   | •                                       | •  |
|  | Long 8 Station Non-Slug Free     | DJSR             |            |           |            |         |                                    |  |            |                      |                    |                   |                |           |                  |             |                    |               |           |             |  | •  |  |                                   | •                                       | •  |

1. Ultra round or shape punches only work in shape guides using clip A0VBWHAC for HP canisters and clip A0VBWKAC for HP2 canisters.
2. Requires the optional M12 bolt to be installed into the guide assembly
3. Requires use of optional Original style strippers
4. Pin must be removed from stripper guide
5. Clip attaches to competitive round punches without pin or key
6. Requires use of Ultra Metric canister
7. Requires the M14 bolt option
8. Must switch to the M12 bolt and centering washer
9. Requires Inch Style Canister
10. Clip attaches to Wilson HP punch after removing original hardware
11. Clip attaches to Wilson HP canister
12. Clip attaches to Wilson HP2 canister
13. Shapes only: Remove retaining ring assembly. Rounds will not work (manufactured after 07/2014 — Rounds & Shapes work with ring attached)
14. Rounds only
15. Requires using punch adapter A0VCWSPA (C station), A0VDWSPA (D station), A0VEWSPA (E station)
16. 3 station only
17. Compatible if guide has horizontal groove on lower lead-in diameter

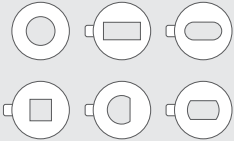
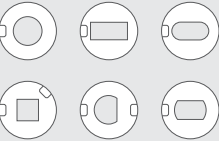
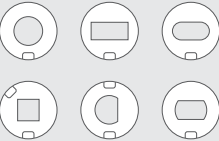
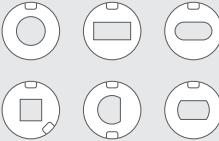
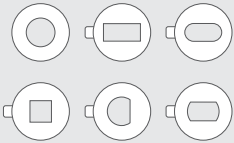
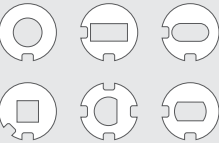
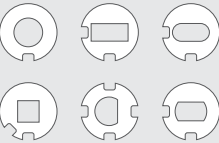
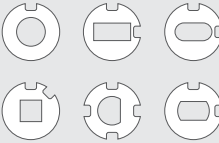
\* Wilson Adjustable Length HP ABS punches 3 station 35307 for Strippit

[Dimensions in Inches (mm)]

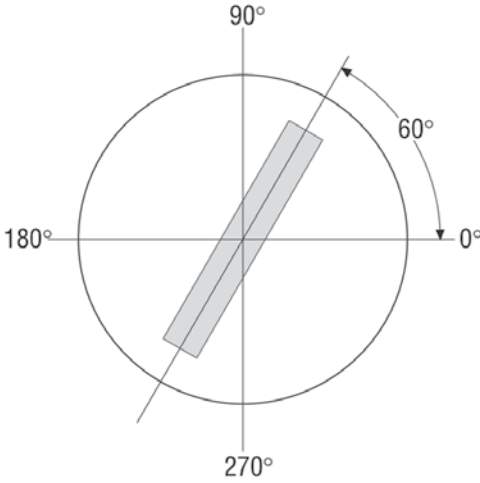




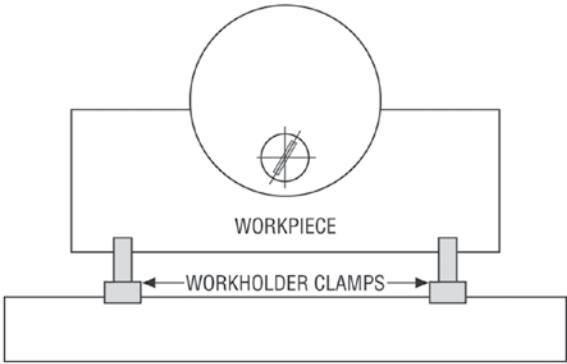
[Dimensions in Inches (mm)]

|         | 1/2" A STATION<br>1 1/4" B STATION  | 2" C STATION  | 3 1/2" D STATION   | 4 1/2" E & F STATION  |
|---------|---|---|--|---|
| PUNCHES |  |  |  |  |
| DIES    |  |  |  |  |

TOP DIE VIEW  
CARTESIAN COORDINATE SYSTEM



TOP DIE OF TURRET



[Dimensions in Inches (mm)]



## **MATE PRECISION TOOLING** GLOBAL COVERAGE

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